



SANDHYAFLEX

ISO 9001:2015 certified company

Strip Seal Expansion Joint As Per IRC: 83 Part II

TECHNICAL DATASHEET

Sandhyaflex Strip Seal Expansion Joint is an innovative and reliable solution for effectively sealing expansion joints in bridges and structures that accommodate movements of up to 125 mm. Designed for infrastructure exposed to continuous traffic loads, the Sandhyaflex range includes multiple variants of Single-Seal Expansion Joints to suit different construction and roadway requirements.

The system clearly separates the two primary functions of rigid anchoring and waterproof sealing, ensuring optimal performance and durability. This distinct design approach allows both the sealing element and edge construction to be precisely engineered and customized according to specific traffic and road specifications. The high-quality elastomeric seal provides a watertight connection that prevents the ingress of water and debris, while the robust anchoring system ensures long-term structural stability under dynamic loading conditions.

With its combination of durability, flexibility, and superior sealing performance, Sandhyaflex Strip Seal Expansion Joints are an ideal choice for bridges, flyovers, highways, elevated corridors, and other critical infrastructure projects requiring dependable movement accommodation and long service life.

Overcoming Challenges, Delivering Excellence:

Traditional expansion joint systems often face challenges such as water leakage, debris accumulation, premature wear, and structural deterioration caused by continuous traffic loading and environmental exposure. These issues can lead to costly maintenance, reduced service life, and compromised structural performance.

Recognizing these challenges, SANDHYAFLEX developed its Strip Seal Expansion Joint system, combining high-quality elastomeric seals with precision-engineered steel edge beams to provide reliable movement accommodation and long-term waterproofing. This advanced design ensures:

- Effective accommodation of structural movements up to 125 mm.
- Continuous watertight sealing against water and debris ingress.
- Mechanically locked seal for enhanced durability and reliability.
- Self-debris expelling design for reduced maintenance requirements.

- Resistance to wear, fatigue, weathering, and heavy traffic loads.
- Smooth and safe vehicle movement across bridge joints.
- Compliance with modern bridge and highway infrastructure standards.

By delivering a durable, low-maintenance, and high-performance expansion joint solution, SANDHYAFLEX Strip Seal Expansion Joints have become a preferred choice for bridges, flyovers, highways, elevated corridors, metro structures, and other critical transportation infrastructure projects.

MORTH Compliance:

For bridge structures to function accurately, bridge deck expansion joints are crucial. These joints can lead to difficulties that are disproportionately bigger than their size if they are not functioning properly. Selecting high-quality joints for use can help reduce maintenance issues with bridges. It is significant to remember that the **Indian Ministry of Roads & Highways (MORTH)** has developed criteria for the design, manufacture, and installation of Strip Seal Expansion Joints. These guidelines ensure that best practices are followed and promote the effective usage of these joints in bridge-building projects.

S. No	Tests	MoRTH Specification Section 2600, Clause 2607 Clause Number	Permissible Limits as per MoRTH Specification Section 2600, Clause 2607	Relevant Code for Testing Procedure/Method
1	Physical Properties - Before Ageing			
	Hardness Test	Table 2600-1	58-68 Shore A	IS : 3400 (Part II)
	Tensile Strength	Table 2600-1	11 MPa (Min)	IS : 3400 (Part I)
	Elongation at Break	Table 2600-1	350% (Min)	IS : 3400 (Part I)
2	Ash Content	Cl. 915.1.3, IRC 83 (Part II)2015	5 % (Max)	IS : 3400 (Part XXII)
3	Polymer Percentage	Cl. 915.1.3, IRC 83 (Part II)2015	60 % (Min)	IS : 3400 (Part XXII)
4	Polymer	Table 2600-1	Chloroprene(CR)	ASTM D297
5	Compression Set	Table 1 Cl. 915.2	-28 % (Max)	IS : 3400 (Part X)
6	Shock Elasticity	Table 2600-1	-25 % (min)	IS : 3400 (Part X)
7	Tear Propagation Strength			
	Longitudinal	Table 2600-1	10N/mm (min)	IS : 3400 (Part 17)
	Transvers	Table 2600-1	10N/mm (min)	IS : 3400 (Part 17)
8	Swelling behaviour in ASTM Oil No 3 for 70°C for 116 hrs			
	Volume Change	Table 2600-1	-25 % (max)	IS : 3400 (Part 17)
	Change in Hardness	Table 2600-1	-20 Shore A (max)	IS : 3400 (Part 17)
9	Physical Properties - After Ageing @ 70°C for 14days			
	Change in Tensile Strength %	Table 1 Cl. 915.2	- 20 % (Max)	IS : 3400 (Part IV)
	Change in Elongation at Break in %	Table 1 Cl. 915.2	- 20 % (Max)	IS : 3400 (Part IV)
	Change in Hardness	Table 1 Cl. 915.2	+ 5 Deg (Max)	IS : 3400 (Part IV)

Services:

At Sandhya Flex, we **design, manufacture, and supply** strip seal expansion joints, as well as **replace, supervise, and install** them. We provide a broad range of services, such as production supply, manufacturing, and design. In addition, we offer services for product **installation, supervision, and component replacement**.

Key Features:

- **Mechanically Locked Seal:** The elastomeric sealing element is securely fastened within steel edge beams, ensuring reliable retention and long-term performance.
- **Continuous Watertight Sealing:** Features a continuous sealing system that effectively prevents the ingress of water, debris, and other contaminants.
- **Self-Debris Expelling Design:** Engineered to naturally expel accumulated debris, helping maintain joint functionality and reducing maintenance requirements.
- **Racking Movement Capability:** Accommodates longitudinal, transverse, and racking movements (for applicable seal profiles) without compromising sealing efficiency.
- **High Wear and Tear Resistance:** Designed to withstand repetitive traffic loading and environmental exposure, resulting in reduced wear and extended service life.
- **Smooth Traffic Movement:** Provides a comfortable and uninterrupted riding surface for vehicles crossing the expansion joint.
- **Low Maintenance Requirements:** Robust construction and durable materials minimize inspection, repair, and replacement needs.
- **Durable Construction:** Manufactured using high-quality elastomeric seals and steel edge beams for dependable long-term performance in demanding infrastructure applications.

Applications:

- **Road Bridges:** Accommodates thermal expansion, contraction, and traffic-induced movements while ensuring a watertight seal and smooth vehicle passage.
- **Highway Bridges:** Designed for bridges carrying heavy traffic loads, providing durability and long-term performance under continuous use.
- **Flyovers and Overpasses:** Protects bridge decks and supporting structures from water ingress while allowing controlled structural movement.

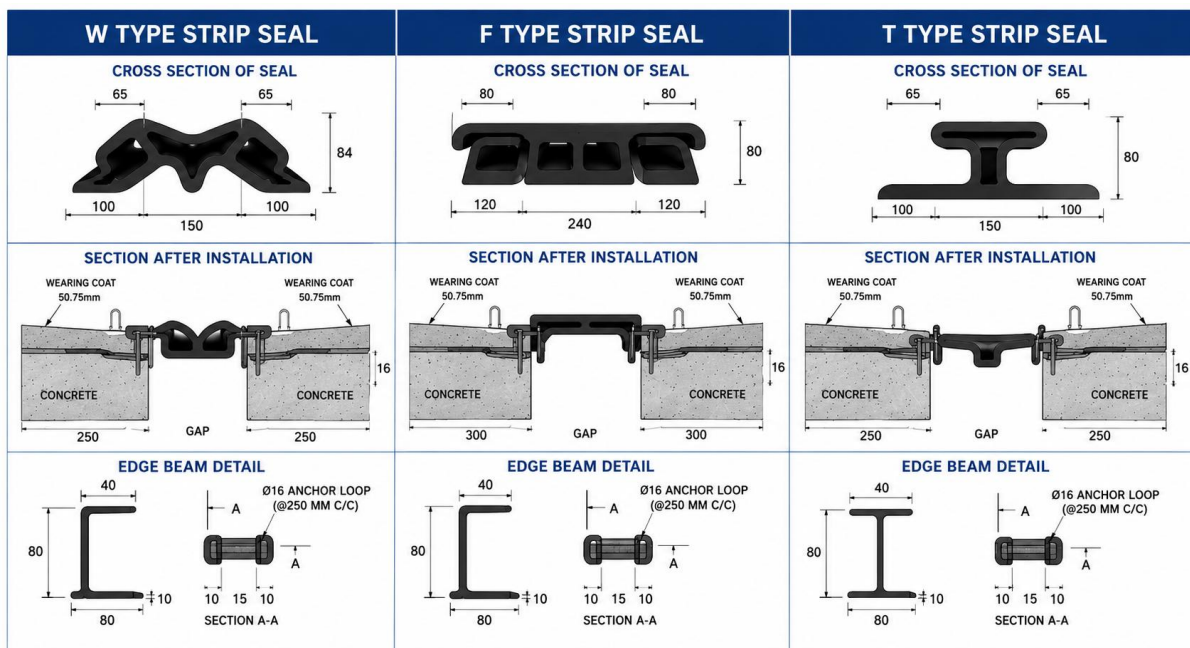
- **Expressways and Elevated Corridors:** Suitable for modern transportation infrastructure where reliability, ride quality, and low maintenance are critical.
- **Viaducts:** Accommodates movement between structural segments caused by temperature changes, live loads, and creep effects.
- **Railway Bridges:** Allows safe structural movement while protecting bridge components from water and debris infiltration.
- **Metro Rail and Transit Structures:** Used in elevated metro corridors and transit infrastructure requiring effective movement accommodation and waterproofing.
- **Interchanges and Grade Separators:** Ensures seamless connectivity between bridge sections subjected to varying traffic and environmental conditions.
- **Bridge Rehabilitation and Upgradation Projects:** Ideal for replacing damaged or outdated expansion joints to improve service life and operational performance.
- **Pedestrian and Foot Bridges:** Provides safe and durable movement joints while maintaining structural integrity and user comfort.
- **Airport Runways and Taxiways:** Can be utilized in large concrete pavement structures where expansion and contraction movements must be accommodated.
- **Industrial Structures:** Suitable for industrial facilities, utility structures, and large concrete constructions requiring controlled movement joints.
- **Marine and Coastal Bridges:** Offers reliable sealing performance in environments exposed to moisture, humidity, and aggressive weather conditions.
- **Urban Infrastructure Projects:** Widely used in city flyovers, elevated roads, smart-city transportation corridors, and other public infrastructure developments.

History of Strip Seal Expansion Joints:

- **1950s – Early Bridge Expansion Systems:** Bridges primarily used open joints and simple metal plates to accommodate thermal movement, but these systems offered limited waterproofing and durability.
- **1960s – Development of Elastomeric Seals:** Engineers began incorporating rubber-based sealing elements to improve flexibility and reduce water penetration into bridge structures.
- **1970s – Introduction of Strip Seal Technology:** Mechanically locked elastomeric seals combined with steel edge beams emerged as a more reliable solution for accommodating structural movement while maintaining a watertight seal.

- **1980s** – Widespread Infrastructure Adoption: Strip Seal Expansion Joints gained popularity in highways, bridges, and flyovers due to their superior durability, smooth ride quality, and reduced maintenance requirements.
- **1990s** – Material and Design Enhancements: Advances in steel fabrication and neoprene/EPDM seal compounds improved resistance to fatigue, weathering, and heavy traffic loading.
- **2000s** – Standardization and Quality Assurance: Manufacturers adopted stricter engineering standards, testing procedures, and quality control measures to ensure long-term performance and reliability.
- **2010s** – Advanced Manufacturing Technologies: Improved production methods enhanced dimensional accuracy, seal retention systems, corrosion protection, and installation efficiency.
- **2020s** – Modern Infrastructure Solutions: Strip Seal Expansion Joints continue to be widely used in bridges, elevated corridors, and transportation infrastructure, offering long service life, effective waterproofing, and low maintenance costs.

Types of Strip Seal Expansion Joints:



Colours and it's Applications:

For Sandhyaflex Strip Seal Expansion Joints, colours are generally used for identification, project specifications, aesthetic requirements, or protective coating systems rather than indicating differences in functional performance.

Colour	Typical Application
Black	Standard neoprene strip seals used in bridges, flyovers, highways, and elevated corridors
Grey	Epoxy-coated steel edge beams for bridges and infrastructure projects requiring a neutral finish
Blue	Specialized infrastructure and project-specific identification requirements
Green	Environmentally sensitive, drainage, and water-related infrastructure projects
Red	Safety-critical zones, restricted-access structures, or project-specific marking requirements
Yellow	High-visibility applications where enhanced identification is required during installation or maintenance
White	Specialized projects requiring colour coding or architectural matching
Custom Colours	Available as per client specifications and project requirements

For bridge authorities, contractors, infrastructure developers, and engineering consultants seeking reliable expansion joint solutions, SANDHYAFLEX stands as a trusted partner. With a strong commitment to quality, durability, and innovation, SANDHYAFLEX offers Premium Strip Seal Expansion Joints designed for bridges, flyovers, highways, metro structures, elevated corridors, and other transportation infrastructure. Manufactured using high-quality elastomeric seals and precision-engineered steel edge beams, these joints provide effective movement accommodation, superior waterproofing, excellent wear resistance, and long service life. Their dependable performance, low maintenance requirements, and compliance with modern infrastructure standards make SANDHYAFLEX a preferred choice for critical civil engineering and transportation projects.

Materials:

The Sandhyaflex Strip Seal Expansion Joint shall be manufactured using a high-quality elastomeric neoprene seal in combination with precision-engineered steel edge beams to provide superior flexibility, durability, waterproofing, and long-term structural performance.

The sealing element shall consist of premium-grade neoprene elastomer formulated with suitable polymers, reinforcing agents, stabilizers, antioxidants, and weather-resistant additives to ensure excellent elasticity, fatigue resistance, and durability under repeated movement cycles. The seal shall maintain its performance under varying temperatures, traffic loads, and environmental conditions.

The edge beam assembly shall be manufactured from high-strength structural steel, designed to securely retain the elastomeric seal and effectively transfer vehicular loads to the bridge structure. The steel components may be provided with galvanized, epoxy-coated, or corrosion-resistant protective finishes to enhance durability and service life.

The materials shall possess adequate resistance to water ingress, ozone, ultraviolet radiation, weathering, abrasion, fatigue, de-icing salts, and chemical exposure, ensuring reliable performance in demanding infrastructure environments.

The finished Sandhyaflex Strip Seal Expansion Joint shall provide a continuous watertight seal, accommodate structural movements up to the specified design range, ensure smooth vehicular movement, and deliver long-term performance in bridges, flyovers, highways, elevated corridors, metro structures, and other transportation infrastructure projects.

RAW MATERIALS OF STRIP SEAL EXPANSION JOINT BY SANDHYAFLEX				
S. No.	Raw Material	Image	Typical Grade / Example	Function / Purpose
1	Elastomeric Seal (Neoprene)		<ul style="list-style-type: none"> Neoprene Rubber (CR) High grade polymer compound With antioxidants, stabilizers, reinforcing fillers & plasticizers 	<ul style="list-style-type: none"> Provides watertight sealing High elasticity and compression set resistance Weather, ozone & UV resistance Accommodates structural movements Long service life under traffic loads
2	Edge Beams (Steel)		<ul style="list-style-type: none"> Structural Steel (IS 2062 / ASTM A36 / EN 10025 Grade S235JR) High strength steel 	<ul style="list-style-type: none"> Supports seal and transfers load Provides structural stability Resists bending and shear forces Ensures durable performance
3	Reinforcement Plates / Anchorage Plates		<ul style="list-style-type: none"> Mild Steel / Structural Steel (IS 2062 / ASTM A36) As per design requirements 	<ul style="list-style-type: none"> Ensures secure anchorage to deck Distributes loads uniformly Enhances structural integrity
4	Anchor Bolts & Fasteners		<ul style="list-style-type: none"> High Tensile Steel (IS 1367 / ASTM A193 B7) Galvanized / Stainless Steel 	<ul style="list-style-type: none"> Provides firm anchorage Resists loosening under vibration Ensures long-term reliability
5	Protective Coating (Steel Components)		<ul style="list-style-type: none"> Hot Dip Galvanized Coating (IS 4759 / ASTM A123) Epoxy Zinc Rich Primer + Epoxy Top Coat 	<ul style="list-style-type: none"> Protects steel from corrosion Enhances durability & service life Suitable for aggressive environments
6	Bonding Adhesive (If Applicable)		<ul style="list-style-type: none"> Polyurethane / Epoxy Based Adhesive High strength, weather resistant 	<ul style="list-style-type: none"> Ensures proper bonding (where used) Prevents water leakage Enhances joint performance
7	Backing / Support Material (If Applicable)		<ul style="list-style-type: none"> Neoprene / EPDM / High Density Rubber 	<ul style="list-style-type: none"> Provides support to seal Controls compression Enhances sealing efficiency
8	Sealant (Field Joint Sealing) (When Required)		<ul style="list-style-type: none"> Polyurethane / Polysulphide Sealant High durability & flexibility 	<ul style="list-style-type: none"> Seals construction joints Prevents water ingress Ensures watertight finishing

	→		→		→		→		→		→		→	
RAW MATERIALS		CUTTING		WELDING		SHOT BLASTING & CLEANING		COATING		JOINT ASSEMBLY		QUALITY INSPECTION		FINISHED STRIP SEAL EXPANSION JOINT

HIGH QUALITY MATERIALS • DURABLE PERFORMANCE • RELIABLE SEALED JOINTS • LONG SERVICE LIFE

Standard Technical Features:

Property	Specification
Product Type	Strip Seal Expansion Joint
Seal Material	High-Grade Neoprene / Chloroprene Elastomer
Edge Beam Material	Structural Steel
Steel Standard	IS 2062
Applicable Standard	IRC: SP:69-2011
Surface Finish	Galvanized / Epoxy Coated
Colour	Black Seal with Grey / Metallic Edge Beams
Water Resistance	Excellent
Corrosion Resistance	Excellent
Movement Capacity	Up to 125 mm
Movement Type	Longitudinal, Transverse & Racking Movement
Wear Resistance	High
Application	Bridges, Flyovers, Highways, Metro Structures, Viaducts & Elevated Corridors
Maintenance Requirement	Low
Packing	Supplied in Standard Lengths as per Project Requirements


Physical and Mechanical Properties:

S. No.	Property / Test	Requirement
1	Product Type	Strip Seal Expansion Joint
2	Joint Configuration	Elastomeric Strip Seal with Steel Edge Beams
3	Seal Colour	Black
4	Movement Capacity	Up to 125 mm (as specified)
5	Seal Material	Neoprene / Chloroprene Elastomer
6	Edge Beam Material	Structural Steel
7	Steel Grade	IS 2062
8	Surface Protection	Galvanized / Epoxy Coated Steel Components
9	Seal Retention	Mechanically Locked System
10	Water Tightness	Complete Waterproof Sealing
11	Corrosion Resistance	Excellent Resistance to Moisture and Environmental Exposure
12	Chemical Resistance	Resistant to De-icing Salts, Oils, Fuels, and Mild Chemicals
13	Traffic Load Resistance	Suitable for Heavy Vehicular Traffic
14	Movement Capability	Longitudinal, Transverse, and Racking Movement
15	Wear Resistance	High Resistance to Abrasion and Fatigue


16	Weather Resistance	Resistant to UV, Ozone, Temperature Variations, and Weathering
17	Debris Management	Self-Debris Expelling Design
18	Service Life	Long-Term Durable Performance with Low Maintenance

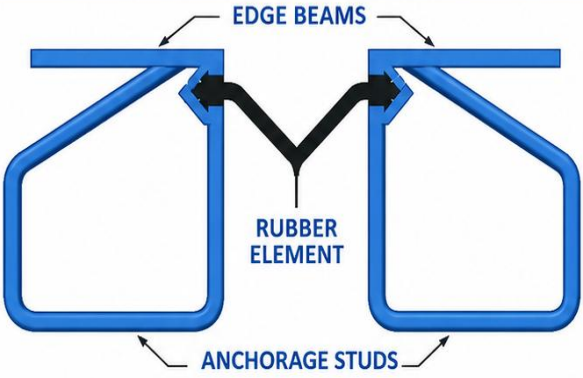
Reference Diagrams:

SANDHYFLEX STRIP SEAL EXPANSION JOINT




READY STOCK STRIP SEAL EXPANSION JOINT






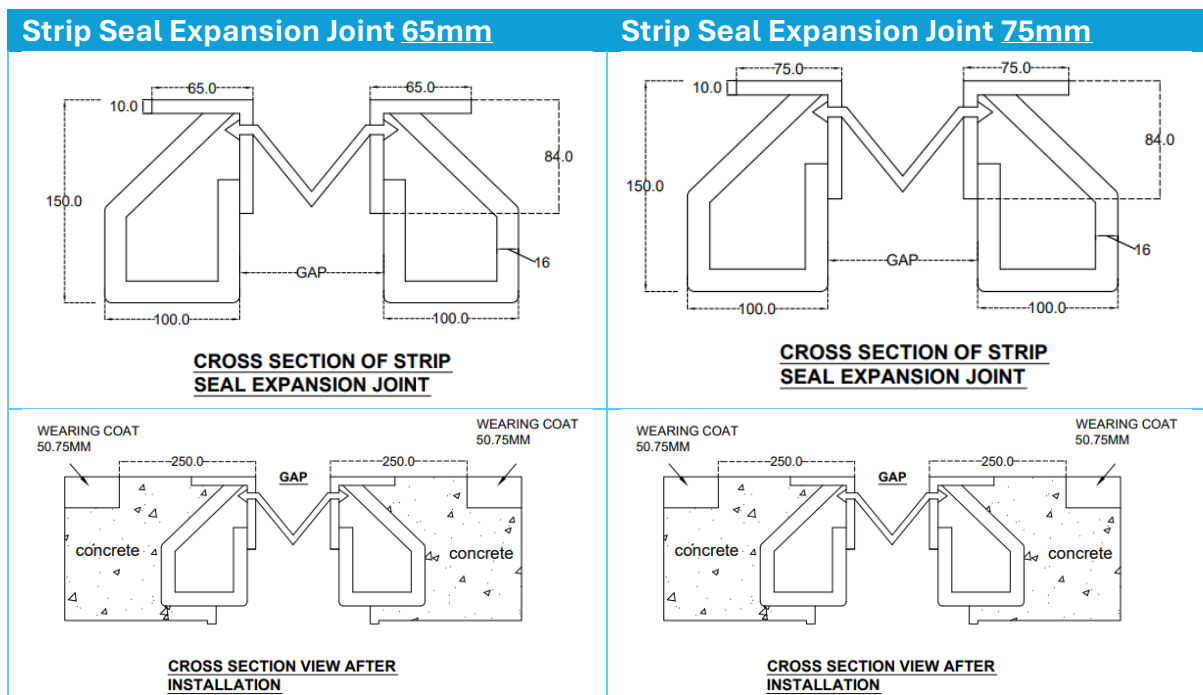
SANDHYFLEX
STRIP SEAL EXPANSION JOINT



WATERPROOF
SEALING



DURABLE
PERFORMANCE



Relevant Standards:

Component	Standard
Strip Seal Expansion Joint	IRC: SP:69-2011
Elastomeric Strip Seal (Neoprene/Chloroprene)	IRC: 83 (Part II)
Structural Steel Edge Beams	IS 2062
Protective Coating / Galvanization	IS 4759 / Project Specification
Dimensional Verification	Approved Manufacturer's Drawing
Installation & Performance Requirements	IRC: SP:69-2011

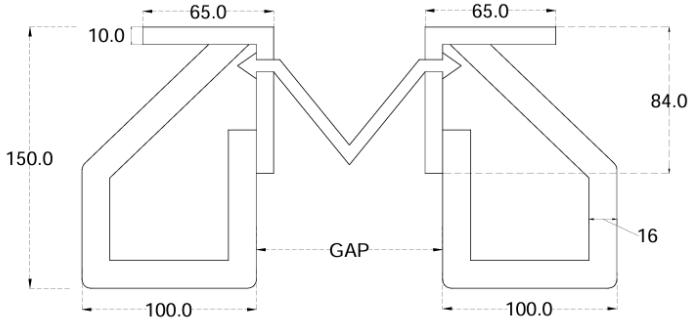
Packing Standard of Strip Seal Expansion Joint:

S. No.	Joint Type	Movement Capacity (mm)	Seal Material	Edge Material	Beam	Applicable Standard
1	Strip Seal Expansion Joint	Up to 80	Neoprene Elastomer	Structural Steel		IRC: SP:69-2011
2	Strip Seal Expansion Joint	Up to 100	Neoprene Elastomer	Structural Steel		IRC: SP:69-2011
3	Strip Seal Expansion Joint	Up to 125	Neoprene Elastomer	Structural Steel		IRC: SP:69-2011

4	M-Type Strip Seal Joint	Up to 80	Chloroprene Seal	Galvanized Steel Edge Beam	IRC: SP:69-2011
5	M-Type Strip Seal Joint	Up to 100	Chloroprene Seal	Galvanized Steel Edge Beam	IRC: SP:69-2011
6	M-Type Strip Seal Joint	Up to 125	Chloroprene Seal	Galvanized Steel Edge Beam	IRC: SP:69-2011
7	T-Type Strip Seal Joint	Up to 80	Neoprene Seal	Epoxy-Coated Steel Edge Beam	IRC: SP:69-2011
8	T-Type Strip Seal Joint	Up to 100	Neoprene Seal	Epoxy-Coated Steel Edge Beam	IRC: SP:69-2011
9	T-Type Strip Seal Joint	Up to 125	Neoprene Seal	Epoxy-Coated Steel Edge Beam	IRC: SP:69-2011

Strip Seal Expansion joint as per IRC: 83 Part II With Specification

S.NO.	Description	HSN Code	Quantity
1	Monolythic F Tyoe size :40mmx80mm (WxD) Gap 40mm, 16mm Dia of Anchoring Rod, 10mm Thickness of Edges Beam Weight 26kg/Mtr	7308	
2	Monolythic T Tyoe size :65mmx80mm (WxD) Gap 40mm, 16mm Dia of Anchoring Rod, 10mm Thickness of Edges Beam Weight 30kg/Mtr	7308	

<p>3</p>	<p>W Type size :65mmx82mm (WxD) Gap 40mm, 16mm Dia of Anchoring Rod, 10mm Thickness of Edges Beam Weiht 29/Mtr</p>	<p>7308</p>	
<p>4</p>	<p>M Type size :75mmx75mm (WxD) Gap 40mm, 16mm Dia of Anchoring Rod, 8mm Thickness of Edges Beam Weight 27.kg/mtr</p>	<p>7308</p>	

Packing Details:

- Supplied in standard lengths as per project requirements and approved drawings.
- Elastomeric seals packed in protective wrapping to prevent deformation during transportation.
- Steel edge beams bundled securely with protective coatings and spacers to prevent damage.
- Each package marked with joint type, movement capacity, batch number, and project reference.
- Packing suitable for road transport, site handling, and long-term storage.

Usage Tips:

- **Install Correctly:** Ensure proper alignment and installation as per project specifications.
- **Maintain Design Gap:** Verify the expansion gap before installation.
- **Inspect Regularly:** Check seals and edge beams periodically for wear or damage.
- **Keep Clean:** Remove debris to maintain sealing efficiency.

- **Prevent Damage:** Protect the joint from impact and heavy construction equipment.
- **Ensure Proper Drainage:** Avoid water accumulation around the joint area.
- **Replace Worn Seals Promptly:** Timely replacement helps maintain waterproofing and performance.
- **Use Qualified Personnel:** Installation and maintenance should be carried out by trained professionals.

Maintenance and Care:

- **Regular Inspection:** Periodically inspect the seal and steel edge beams for wear, damage, or displacement.
- **Keep the Joint Clean:** Remove dirt, debris, and other foreign materials to maintain effective sealing and movement capability.
- **Check Drainage Systems:** Ensure drainage outlets remain unobstructed to prevent water accumulation around the joint.
- **Monitor Seal Condition:** Replace damaged or excessively worn sealing elements promptly to maintain waterproofing performance.
- **Inspect Protective Coatings:** Check galvanized or coated steel components for signs of corrosion and repair if necessary.
- **Avoid Mechanical Damage:** Protect the joint from impacts caused by construction equipment or improper maintenance activities.

Applications by Countries:

India:

Widely used in highway bridges, railway bridges, flyovers, and metro rail projects.

- Commonly installed in national highways, expressways, and urban elevated corridors.
- Growing demand in smart city and infrastructure development projects.

China:

Extensively used in large-scale bridge construction, expressways, and high-speed rail networks.

- Commonly installed in urban transportation and elevated roadway projects.
- Preferred for major infrastructure and industrial corridor developments.

United States

- Widely used in highway bridges, interstate transportation networks, and overpasses.
- Commonly installed in bridge rehabilitation and replacement projects.
- Increasing adoption in airport pavements and heavy-traffic infrastructure.

Europe

- Preferred for bridges, viaducts, railway infrastructure, and urban transportation systems.
- Commonly used in high-performance structures requiring durability and waterproofing.
- Strong demand due to strict quality and safety standards.

Middle East

- Extensively used in highway bridges, flyovers, and large-scale transportation projects.
- High demand in infrastructure exposed to extreme temperatures and harsh environmental conditions.
- Commonly installed in smart city and urban development projects.

Africa:

Used in road bridges, flyovers, and transportation infrastructure projects.

- Important for new urban development and highway expansion programs.
- Growing adoption due to durability, low maintenance, and long service life.

Get in touch:

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