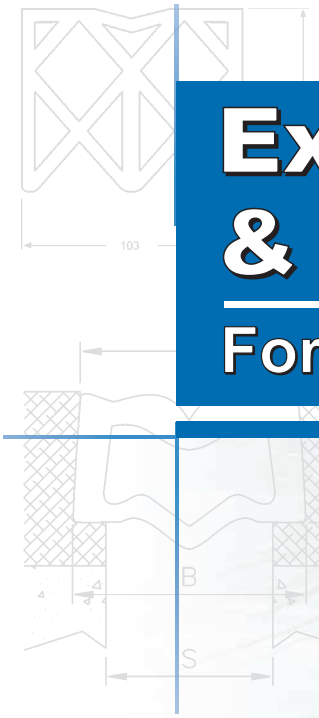
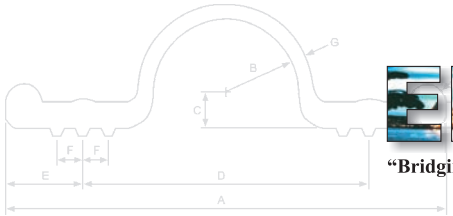
EXPANSION CONTROL SOLUTIONS

Expansion Joints & Seals

For Bridges and Buildings



















SUPPORTING *the* FUTURE

EKSPAN

"Bridging the years, Supporting the future"

log on for online support, and
full range of products/services

www.ekspan.com

Contents

Multi Element Expansion Joints	- Type 6	4
Single Element Expansion Joints	- Type 6	5
Roller Shutter Expansion Joints	- Special High Durability	6
Finger Type Expansion Joints	- Type 7	7
TF Ekspansion Joints	- Type 5	8 - 9
T-Mat Type Expansion Joints	- Type 5	10
Seal Type Expansion Joints	- Type 4	11 - 12
Examples of Incorrect Joint Selection and Installation		13
Examples of Expansion Joint Supply and Installation		14

Note - Joint type options for expansion joint use in highway bridge decks - reference UK Highways Agency BD 33 - Table 1. The majority of Ekspan's expansion joint types, detailed in this brochure, are registered with the UK Highways Agency.

Introduction

Expansion Joints

Expansion joints form the load-carrying link between the abutment and the deck, or between individual decks of a bridge. Their function is to create a transition that maintains a high level of riding comfort for vehicular traffic and limits noise output from this traditionally problematic part of a bridge structure. To achieve this the expansion joint accommodates movements resulting from the settlement of piers and abutments, temperature variation, traffic load and from creep and shrinkage of the concrete.

Ekspan offer a comprehensive range of expansion joints delivered with full service installation and maintenance. Our extensive specialist knowledge and expertise in joint installation/remedial works enables us to provide tailored solutions to suit every situation and movement requirement. Expansion joints form an integral part of the bridge, supplying customers the correct joint type is only one part of the job, equally critical if not more is the importance of correct installation and after care maintainance, this is where Ekspan's technical skill comes into play.

Watertight joints protect the bridge deck and the bearings below, preventing water ingress, concrete spalling and structural failure. Ever increasing maintenance costs are one of the major concerns. Any method of minimising maintenance is therefore of the utmost value, and our joints do precisely that, providing long-term savings with assurance of quality, safety and durability.

Expansion Seals

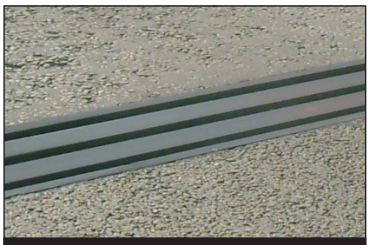
Damage can be caused by installation of joints that subsequently leak. Leaking water can cause bearing corrosion, seizure and concrete damage. Ekspan's ES range of expansion joint seals can be fitted beneath an existing joint, helping to prevent damage by collecting and allowing the water to flow away from sensitive deck end areas.

Our Assurance

Ekspan's team of highly experienced engineers, designers and technicians will assist structural designers to arrive at optimum whole life cost effective solutions. We assist with problem solving on all levels and the practical implementation of these highly engineered products. It is important to deliver high-spec manufacture to the permanent works.

This design/selection aid document provides an overview of Ekspan's supply and installation of different types of expansion joints, however if you require further information simply contact us on the details below and we will gladly assist with your enquiry.

Expansion Joint & Seal Range



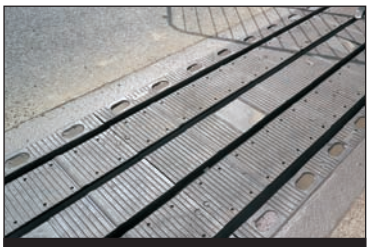
MULTI & SINGLE ELEMENT
Expansion Joints - **Type 6**



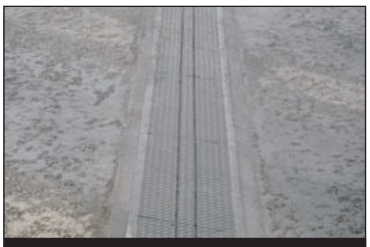
ROLLER SHUTTER
Expansion Joints - **Special**



FINGER TYPE
Expansion Joints - **Type 7**



TF
Expansion Joints - **Type 5**



T-MAT TYPE
Expansion Joints - **Type 5**

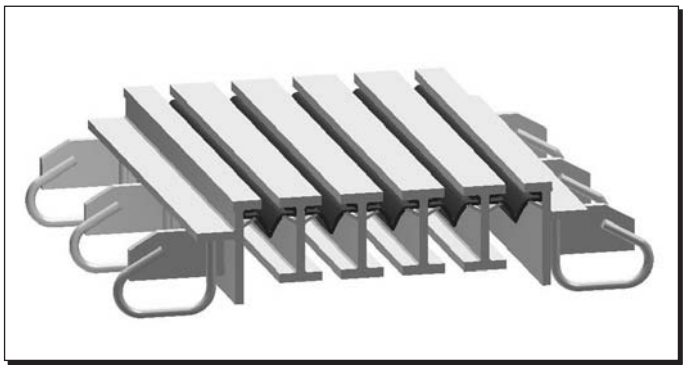


SEAL TYPE
Expansion Joints - **Type 4**

Guide for Joint and Seal Joint Selection

Types of Expansion Joints/ Seals Joints	Movement upto (mm)	SUITABLE APPLICATIONS: Motorways	Road Bridges	Rail Bridges	Car Parks	Stadiums/Ramps	Pedestrian Walk-way	Wall/Building	Parapet/Surface	Expansion Joint Seal	Page Location . . .
Multi Element Joint	2000	✓	✓								Page 4
Roller Shutter Joint	2000	✓									Page 6
Finger Type Joint	1000	✓	✓								Page 7
TF Joint	800	✓	✓								Page 8-9
Mat Type Joint	260	✓	✓	✓	✓	✓	✓				Page 10
EC Seal Joint	80		✓		✓		✓				Page 11
EW Seal Joint	60					✓	✓	✓	✓	✓	Page 11
ES Seal Joint	190								✓	✓	Page 12

Description, Key Features & Application - WSG 160 to 1040 - Type 6





Key Features:

- For large movements up to 2000mm
- Durable
- Watertight
- Low noise and wear resistant

Applications:

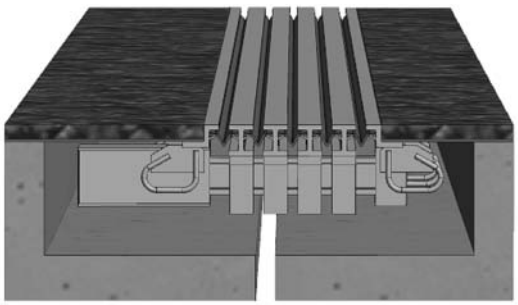
- Motorways
- Road Bridges

Multi element expansion joints (often referred to as modular joints) are made up of modular lengths of steel beams with a gap between each beam fitted and locked together with watertight elastomeric seal profiles. Anchor loops are welded to the base of the joint at equal distances, which form part of the fitting mechanism and also reinforces the joint.

The fitted elastomeric control springs coordinate individual movements of the beams in conjunction with the elastomeric profiles, enabling the multi element joint to absorb any combination of movement in all directions. This system of movement control greatly reduces the forces acting directly on the other expansion joint components and also on the adjacent bridge structure, thus extending the life span of the entire system.

Types Available

Type Ref. and Movement		No. of Seals
WSG	**160**	2
WSG	**240**	3
WSG	**320**	4
WSG	**400**	5
WSG	**480**	6
WSG	**560**	7
WSG	**640**	8
WSG	**720**	9
WSG	**800**	10
WSG	**880**	11
WSG	**960**	12



General assembly arrangement of joint fitted to the bridge deck

Installation

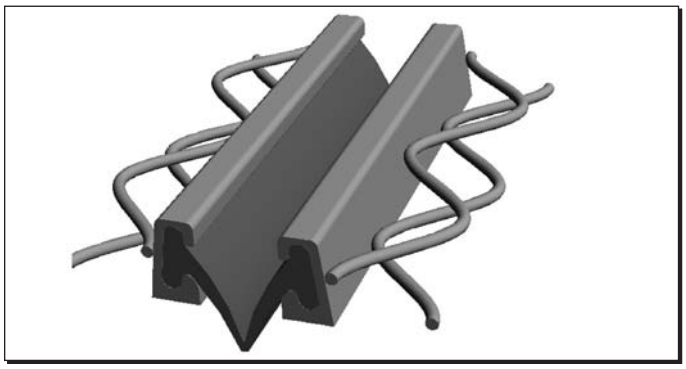
Multi element expansion joints are normally supplied as continuous watertight assemblies ready for immediate installation by EKSPAN's experienced staff. The assembled joint is lifted into the prepared concrete rebate, levelled and the steel anchors attached to the deck reinforcement.

After placing of transverse lacer bars and shuttering of the joint gap, structural concrete is poured to fill the rebates level with the deck concrete prior to asphalting. Transport clamps are then removed and the joint becomes free to move as the concrete cures.



Multi element joint carefully being lifted into the concrete rebate

Description, Key Features & Application - WSF 80 - Type 6





Key Features:

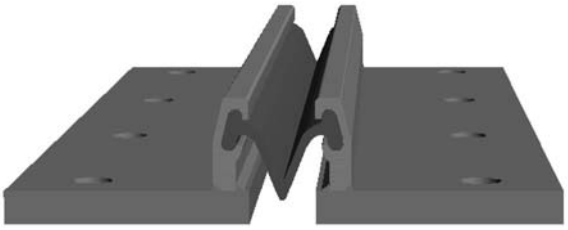
- Movements up to 80mm
- Flexible
- Watertight
- Easy to install

Applications:

- Shallow bridge decks
- Car parks
- Carriageways and footways
- Buildings

A single element expansion joint is made up of a single watertight elastomeric seal mechanically fitted and locked between two lengths of steel beams.

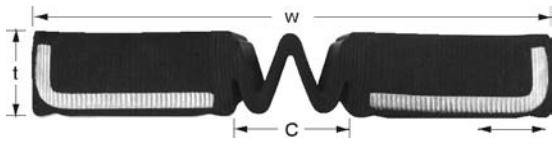
We would recommend seals above 80mm are avoided. The maximum 80mm gap avoids stress on the surface mounted fixings which reduces whole life.



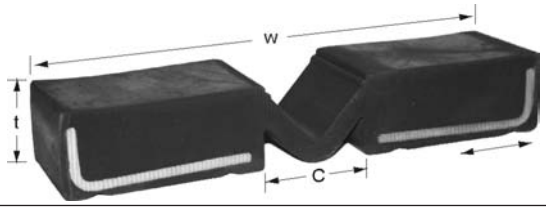
Alternative mount for joint

TF B-75 and TF B-7 Expansion Joints

TF B-75



TF B-7



Key Features:

- Movements up to 50mm and 75mm
- Comfortable driving over the joint
- Very low maintenance

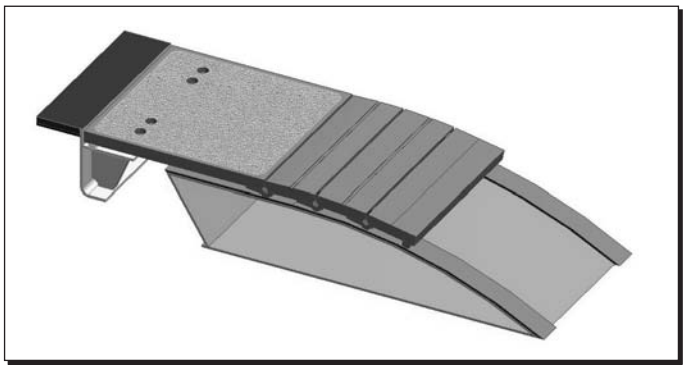
Applications:

- Bridge decks
- Overhead pedestrian walk ways
- Multi-story car parks

Model	Travel (mm)	Dimensions (mm) t	W	C
TF B-75	75	35	220	35 min / 50max
TF B-7	50	34	209	25 min / 40max

Impact loads are absorbed by the elastomer and are not transmitted directly to the anchor points. The flexible central membrane does not produce loads on the structure.

Description, Key Features & Application - Special High Durability





Key Features:

- For movements greater than 800mm
- Durable and shown to resist seismic events
- With maintenance can endure high lifespan of the structure

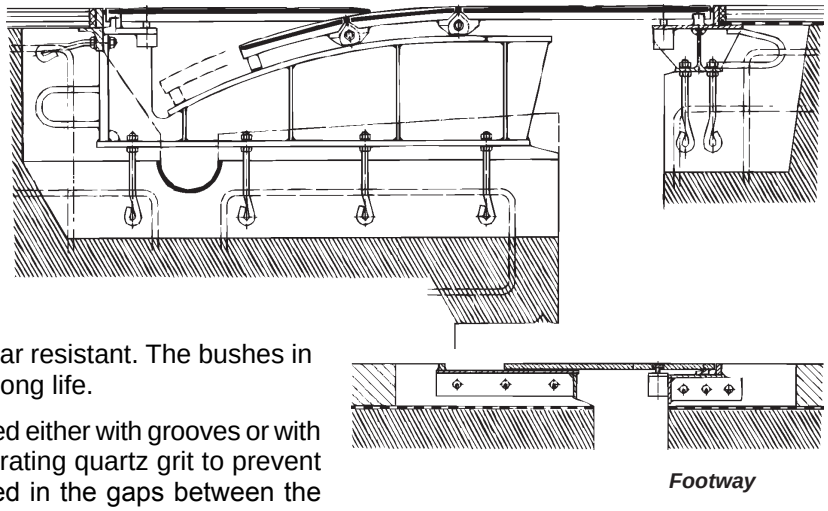
Applications:

- Motorways
- Road Bridges

In theory, it is possible for a multi element expansion joint to accommodate any magnitude of movement.

However, roller shutter expansion joints are recommended for movements in excess of 800mm in order to achieve maximum safety and comfort for traffic (avoiding wash board effects and danger of skidding), noise prevention, stability of the structure and fatigue strength.

The roller shutter joint comprises of steel sliding plates hinged to each other and to the bridge plate which slide upon the slide frame to compensate for expansion movements. The fixed plate, lying tangentially, provides for a smooth and quiet riding surface.



The faces of the hinged cams, sliding plates and slide frames are armoured by a special welding process to make them wear resistant. The bushes in the cams are also designed for a long life.

The road surface areas are equipped either with grooves or with a special resin compound incorporating quartz grit to prevent skidding. Neoprene strips are fitted in the gaps between the sliding plates to resist water and dirt.

The roller shutters are provided with a stainless steel channel to collect any water passing through the supporting surfaces of the fixed and the sliding plates to the substructure, and to direct it towards the drainage system of the structure.

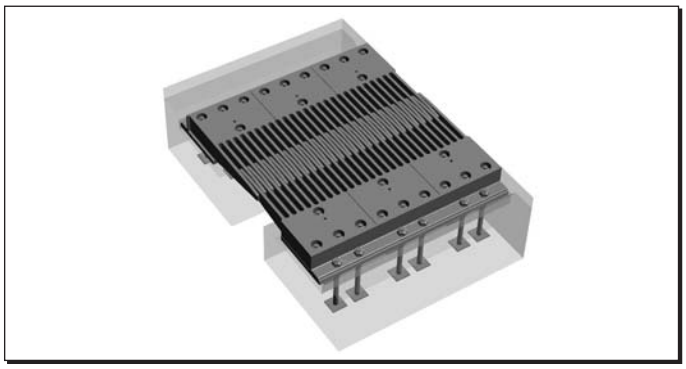
Installation & Inspection

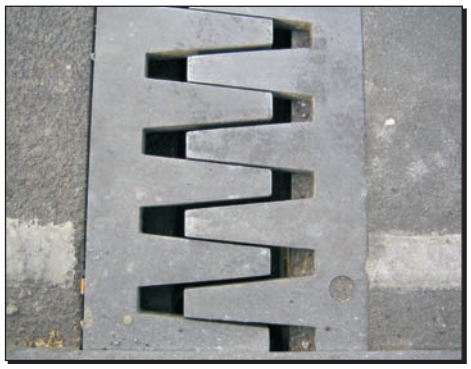
After being pre-assembled in our works, the elements are delivered to site and can be incorporated within the structure.

The roller shutter expansion joint is always accessible for inspection from below, without affecting the traffic.

A more thorough inspection from above, i.e. from the road surface is possible after dismantling individual plates and so minimising disruption as only a local diversion around the removed plates is necessary.

Description, Key Features & Application - Type 7





Key Features:

- For movements up to 1000mm
- Long durability and good grip surfaces
- High performance and smooth riding comfort
- Lifespan of 40+ years

Applications:

- Motorways
- Road bridges
- Designed to suit applications - examples available

Finger type expansion joints are made up of fabricated or cast steel fingers and can be fitted mechanically as either continuous or modular sections in order to provide different options for clients needs.

They are very robust joints recommended for high performance requirements imposed by heavy traffic flows and movements on highways accommodating both horizontal and vertical movements, and rotations.

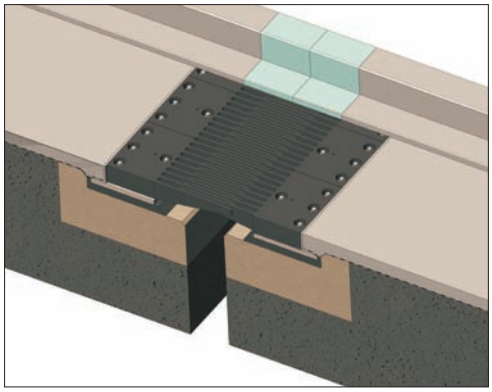
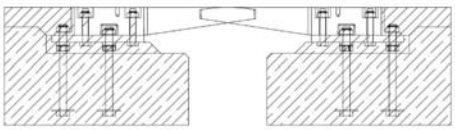


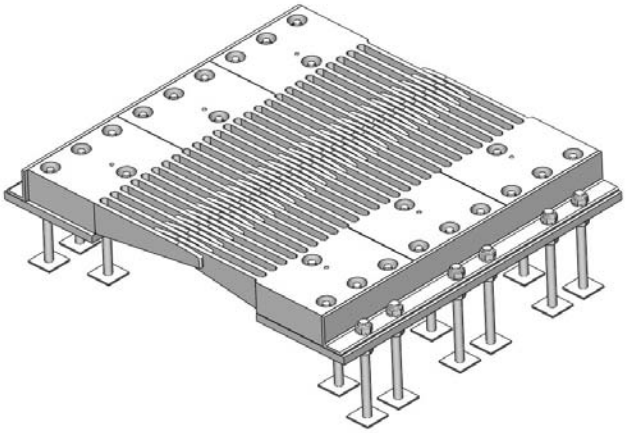
Image showing finger arrangement of installed joint



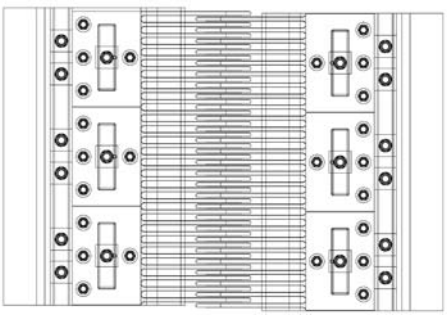
Waterjet finger joints

Cross Section

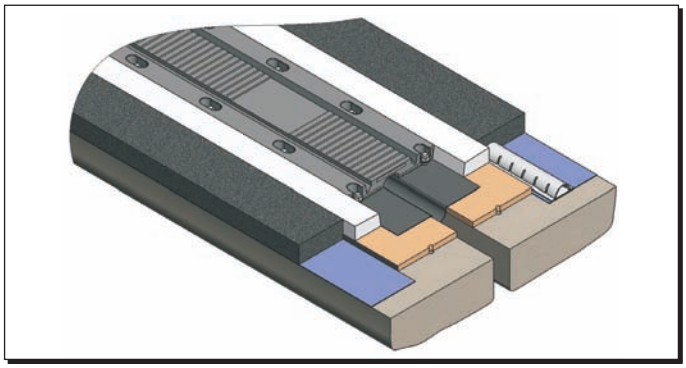




Top View



Description, Key Features & Application - Type 5



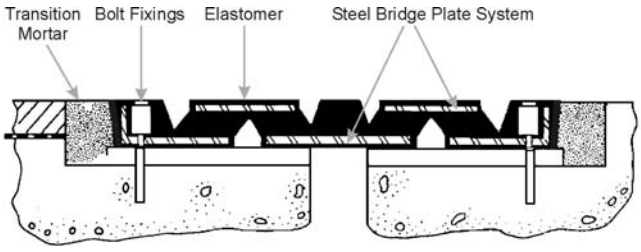


Key Features:

- For movements up to 330mm
- Accommodates skew movement
- Smooth, wear resistant surface
- Corrosion resistant elastomer casing
- Easy and fast to assemble
- Special joints and kerb units available

Applications:

- Motorways
- Road Bridges



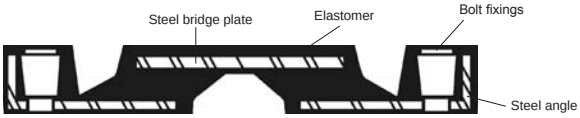
Typical cross section through the fitted joint

TF expansion joints are high quality robust elastomer moulded modules with reinforced steel bridge plates. These are supplied in modules of specified lengths designed for bolting to the structural deck on either side of the expansion joint. A wide range of module sizes are available to absorb movements up to 330mm, and also those produced by skew joints.The main function of TF expansion joints are to absorb these movements, providing a substantially waterproof joint and a smooth, low noise, high wear resistant surface.The multiple elements of the joint are connected at the top end with a tongue and groove connection.

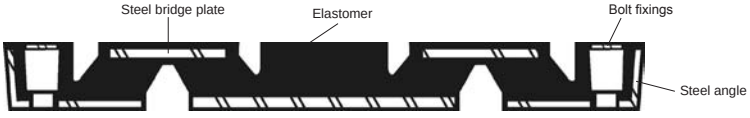
TF Joint Types & Dimensions

The TF expansion joint is available in four different construction types:

1) The 150, 200, 250 and 300 models have a single bridge joint.



2) The 400, 650, 900 and 1300 models have a triple bridge plate.

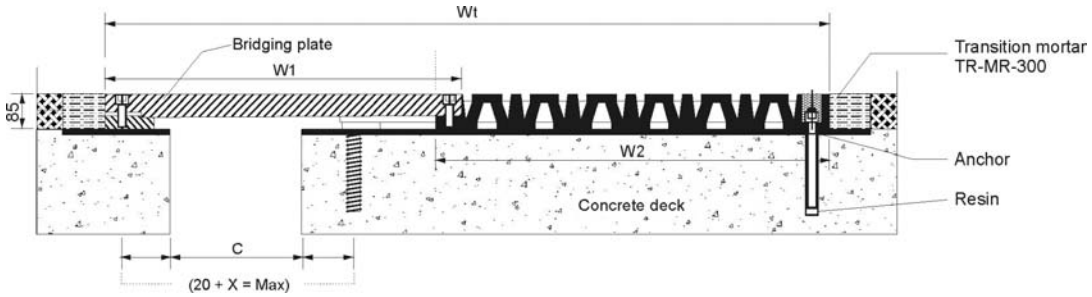


Model	Movement (mm)	L (mm)	t (mm)	Wt (mm)	W1 (mm)	W2 - Module Width (mm)	M	C at mid temp (mm)	X (mm)
TF 150	38 (+/- 19)	1750	35	-	-	240	M12	39	58
TF 200	50 (+/- 25)	1830	40	-	-	274	M14	51	76
TF 250	65 (+/- 32.5)	1830	46	-	-	356	M14	67	98
TF 300	80 (+/- 40)	1830	54	-	-	432	M16	88	126
TF 400	102 (+/- 51)	1830	54	-	-	590	M16	102	152
TF 650	165 (+/- 82.5)	1830	75	-	-	724	M20	121	203
TF 900	230 (+/- 115)	1830	93	-	-	890	M24	158	273
TF 1300	330 (+/- 165)	1220	127	-	-	1207	M27	216	381

3) The 1600 to 4800 models are suitable for the largest joint movements (seismic joints). With these models, a bridge plate is inserted between two TF elements.

4) The 1600 to 2400 models are also available as an asymmetric type, where the bridge plate is positioned on one side rather than between the TF elements.

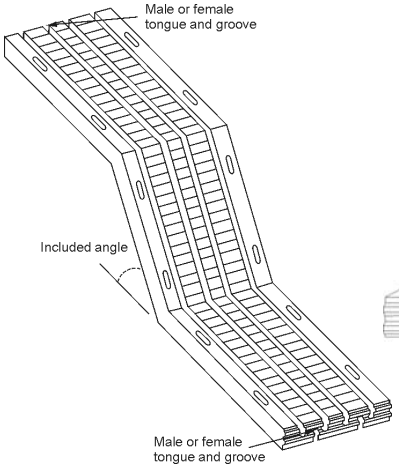
TF 1600 to TF 3200

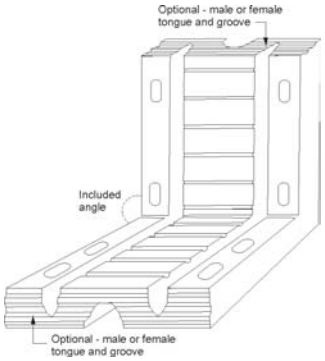


Model	Movement (mm)	L (mm)	t (mm)	Wt (mm)	W1 (mm)	W2 - Module Width (mm)	M	C at mid temp (mm)	X (mm)
TF 1600	400 (+/- 200)	1600	85	1280	665	675	M20	220	420
TF 2000	500 (+/- 250)	1600	85	1520	765	815	M20	270	520
TF 2400	600 (+/- 300)	1600	85	1760	865	955	M20	320	620
TF 2800	700 (+/- 350)	1600	85	2000	965	1095	M20	370	720
TF 3200	800 (+/- 400)	1600	85	2240	1065	1235	M20	420	820

Special Parts

For gutters, curbs and/or other interruptions in the TF joint, Ekspan can supply pre-fabricated corner pieces in any shape and angle necessary, in both flat and standing models to ensure continuity of the sealing. These parts are vulcanised in our plant, guaranteeing an excellent waterproof joint.







Curb with vulcanised corner joint

Examples of TF joint installations



M74 - Port Eglington Viaduct - Glasgow
Installation of TF1300 expansion joints.

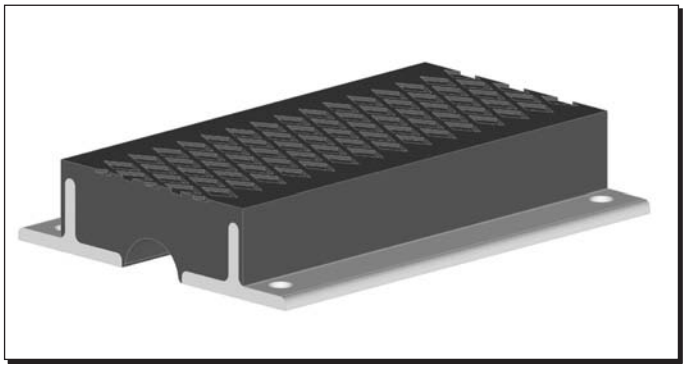


Arundel Square - London
Installation of 100 linear meters of TF150 joint.



A30 Avers to Tolvaddon
Installation of 50 meters TF650 joint.

Description, Key Features & Application - Type 5





Key Features:

- For longitudinal movements from +/- 15 (T 30) up to +/- 130 (T 260)
- Impervious to deep standing water

Applications:

- Motorways
- Rail and road bridges
- Primary/secondary roads
- Pedestrian walkways

T-Mat type expansion joints consist of elastomeric pads clamped to steel clamping profiles and preloaded bolts. Different clamping profiles are available for use depending on the access for removal of bolts and clamping profile required. These type of joints can be provided either with or without reinforced steel depending on the application.

T-Mat type expansion joints provide particular advantages for rail bridges to hold ballast. The elastomeric seal pad is designed to open and close under supporting ballast which is prevented from entering the expansion gaps. They can be used for both longitudinal and transverse joints.

For road bridges, the expansion joint surface is positioned at the same level as the road surface, thus ensuring a smooth and quiet ride quality.



Nosing mortars being poured once joint is fitted in position

Movements (mm)			
T-Mat	**Axis X Longitudinal**	**Axis Y Transverse**	**Axis Z Vertical**
T 30	+/- 15	+/- 40	+/- 30
T 80	+/- 40	+/- 60	+/- 40
T 130	+/- 65	+/- 100	+/- 70
T 260	+/- 130	+/- 200	

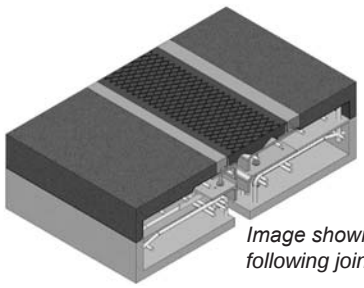
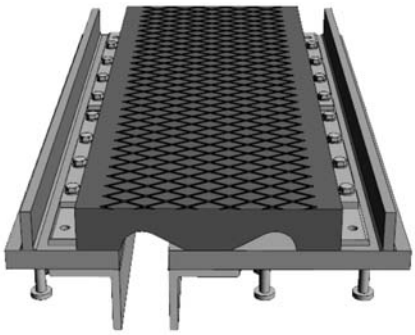


Image showing flat level surface following joint installation



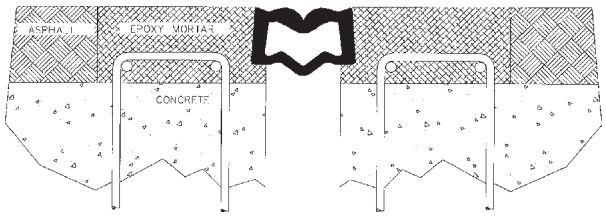
Alternative clamping profile for T-Mat joint using bolts and studs

Installation Guidelines

Expansion joint removal and replacement is a temperature critical operation and temperatures should be recorded over the period of works to ensure expansion joint gaps are maintained. It is important that any expansion joint manufacturer's notes relating to temperature for installation are strictly adhered to or otherwise agreed prior to the works commencing.

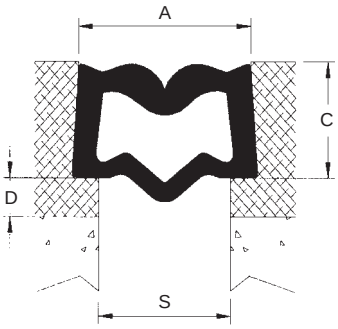
EC and EW Seal Type Expansion Joints - Type 4 Seals

Application



Seal type expansion joints are used at road level, especially on car parks and some bridge structures. The main function of expansion joints is to absorb movements of bridges caused by changes in temperature, thus avoiding any bulge dip or gap that would otherwise form on the top surfaces. In this application, the expansion profile is located between epoxy mortar nosings or prefabricated steelworks.

EC - Profile



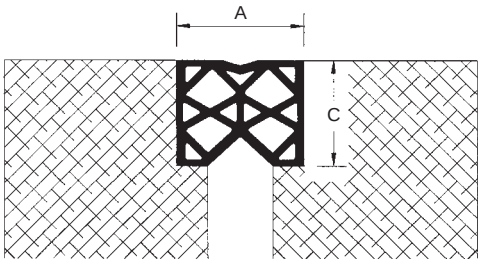
The EC profile is a robust profile ideal for heavy-duty purposes. The joint is carefully designed to ensure that the rubber moves in predetermined directions as the expansion gap closes. Due to the geometry of this profile, it is self- retaining and thus the use of adhesive to attach the profile to the joint is not essential.

Characteristics for the EC profile are gathered in the following table.

Profile Type	Length Span of Bridge (m)	* Dilat. Area	Joint Gap - A		Joint Depth - C	Split Gap - S		Split Depth - D
			A min (40 °C)	A max (-20 °C)		S min (40°C)	S max (-20 °C)	
EC 10	5 - 14	10	25	35	44	0	20	0
EC 30	14 - 42	30	35	65	44	16	46	25
EC 45	42 - 63	45	48	93	58	21	66	30
EC 60	63 - 84	60	57	117	68	25	85	40
EC 80	84 - 111	80	71	151	90	30	110	50

(When the corner between the axis of the road and the joint is not 90º, the permissible dilation can be bigger. In these specific cases please contact us.)*

EW - Profile



The EW profile is a light profile that can be easily pressed in, and hence mounting can be carried out with ease. The joint can be straight when using this profile.

Characteristics for the EW profile are summarised in the following table.

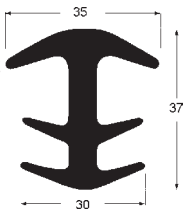
Profile Type	Length Span of Bridge (m)	* Dilat. Area	Joint Gap - A		Joint Depth - C
			A min (40 °C)	A max (-20 °C)	
EW 20	5 - 27	20	20	40	37
EW 30	27 - 42	30	30	60	50
EW 45	42 - 63	45	50	95	110
EW 60	63 - 84	60	60	120	115

(When the corner between the axis of the road and the joint is not 90º, the permissible dilation can be bigger. In these specific cases please contact us.)*

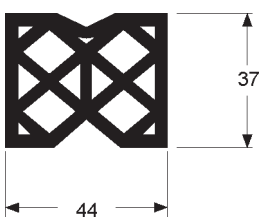
The rubber seals used for the EW series are designed in three different profiles:

1) **EW 10**, 2) **EW 20**, and 3)**EW 30**, **EW 45**, **EW 60** (identical in design, but in different sizes)

1 **EW 10**

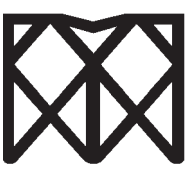


2 **EW 20**



3 **EW 30, 45, 60**

EW 30 = 65 x 50mm
EW 45 = 103 x 90mm
EW 60 = 130 x 100mm



Dimensions Expansion Gap

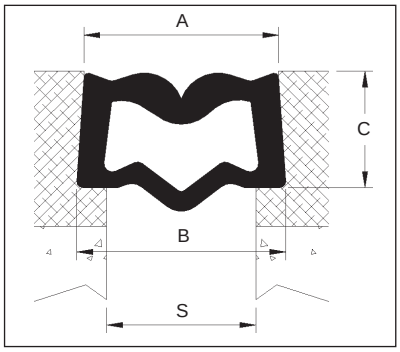
The diagram on the right shows the dimensions of the expansion for the EC profile. The corresponding dimensions for the EW profile are also shown in the following table.

Measurements	EC 10	EC 30	EC 45	EC 60	EC 80	EW 20	EW 30	EW 45	EW 60
A	S + 15	S + 19	S + 27	S + 32	S + 41	S + 20	S + 30	S + 50	S + 60
B	S + 21	S + 25	S + 35	S + 42	S + 55	S + 20	S + 30	S + 50	S + 60

To calculate the expansion gap (S) the following formula is used:

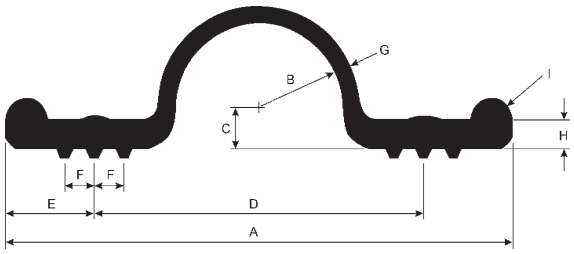
Expansion gap (S) = (Smax) - (0.000012 x (t + 20) x L) - (L x K)

- S max = Maximum expansion gap at -20°C (see table on page 11)
- L = Working length span of bridge (mm)
- t = Temperature concrete (°C)
- K = Factor for creep and shrinkage of concrete
  - Concrete between 3 and 12 months K = 0.00014
  - Concrete older than 1 year K = 0
- Linear expansion coefficient for reinforced concrete: 12 x 10^{-6}.
- Temperature range from 20°C - 40°C (Δ t = 60°C).



ES Expansion Joint Seals

The ES seal, originally designed for immersed tunnels as a secondary seal, is a robust, flexible, reinforced omega shaped rubber seal used in various applications. It is an ideal solution for joints where gap movements can be expected as a result of temperature effects and/or settlements. The unique property of the ES seal enables it to withstand high water pressure in combination with large movements in all directions.



Applications:

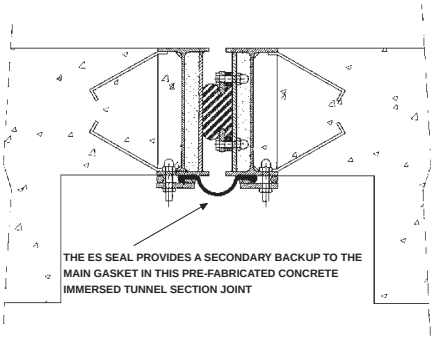
- Tunnels
- Aqueducts
- Bridges

Based upon materials data, ES seals have a projected life in excess of 100 years. The operating temperature should be within -30°C and +70°C and the rubber should not come into contact with hazardous materials, such as oil.

Type	Nominal Gap (mm)	Movement Range (mm)	Dimensions (mm)									Weight (kg/m)
			A	B	C	D	E	F	G	H	I	
ES200-25	≤ 50	-50 to +40	200	25	0	150	25	N/A	10	10	N/A	2.8
ES240-40	80	-40 to +60	240	40	20	154	43	12	8	14	10	4.5
ES300-70	140	-70 to +65	300	70	0	212	44	14	8	14	10	5.4
ES360-100	200	-100 to +90	360	100	0	272	44	14	10	14	10	7.1
ES400-100	200	-100 to +90	400	100	0	296	52	17.5	10	18	10	8.8

Application Examples

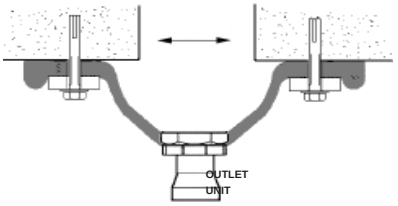
ES SEAL IN A TUNNEL APPLICATION



ES SEAL IN A CANAL AQUEDUCT (BEFORE COVER IS FITTED)



ES SEAL USED AS A GULLEY ACROSS EXPANSION JOINT IN BRIDGE STRUCTURE. OUTLET UNIT CAN BE FITTED AT REQUIRED LOCATION ON SITE



Corner shapes can be vulcanised to the seal prior to supply.

For any enquiries or advice, please contact us at enquiry@ekspan.co.uk or call 0114 2611126

Examples of Incorrect Joint Selection and Installation . . .



Joint going to nowhere . . . pavement cracking, bridge locking?



Cover plate missing at curb, seal in joint large and filling with debris. Poor installation of surfacing mounted edge rails leading to breakages.



Incorrect joint selection - seal and rails rotating, pulling away grouts and fixings.



Width of joint does not accord with UK Highways Agency BD 33 - leading to short life and damage to fixity in road surface.



Joint not consistent, part single seal and part rubber - most likely to leak water from carriageway.

Examples of Expansion Joint Supply and Installation

M74 EXTENSION - PORT EGLINGTON BRIDGE EAST & WEST ABUTMENTS - GLASGOW



Job Brief

Supplied & Installed:

100 linear metres of TF 1300 Expansion Joints - (65mtrs for west side and 35mtrs for east side) with special upstands on Port Eglington Viaduct.



Main Contractor:

Interlink M74 JV

EAST MOORS VIADUCT - CARDIFF, WALES



Job Brief

Supplied & Installed: Multi-Element Expansion Joint

Scope of works comprised of removing old joints after hydro-demolition, off-loading, lifting, positioning and installation of the multi-element expansion joints on Eastmoors Viaduct – Cardiff.



Main Contractor: Tarmac

M5 AVONMOUTH BRIDGE - BRISTOL



Job Brief

Supplied & Installed: Roller Shutter Expansion Joint

Scope of works comprised of replacement of worn roller shutter joints on the M5 Avonmouth Bridge.



Main Contractor:

HA Area 2 Mac Contract

RIVER TONE BRIDGE - TAUNTON



Job Brief

Supplied & Installed: Mat 80 Expansion Joint

Scope of works comprised of the installation of 2 x Mat 80 expansion joints with welding of one half of the rail to the bridge end.



Main Contractor:

Volker Laser

Notes

CONVERSION TABLE

METRIC

Length	1 mm	=	0.03937 in
	1 m	=	3.281 ft
	1 m	=	1.094 yd
Area	1 mm^2	=	0.00153 in^2
	1 m^2	=	10.764 ft^2
	1 m^2	=	1.196 yd^2
Force	1 N	=	0.2248 lbf
	1 kN	=	0.1004 tonf
Stress and pressure	1 N/mm^2	=	145 lbf/in^2
	1 N/mm^2	=	0.0647 $tonf/in^2$
	1 N/m^2	=	0.0208 lbf/ft^2
	1 kN/m^2	=	0.0093 $tonf/ft^2$

IMPERIAL

Length	1in	=	25.4 mm
	1 ft	=	0.3048 m
	1 yd	=	0.9144 m
Area	1 in^2	=	645.2 mm^2
	1 ft^2	=	0.0929 m^2
	1 yd^2	=	0.8361 m^2
Force	1 lbf	=	4.448 N
	1 tonf	=	9.964 kN
Stress and pressure	1 lbf/in^2	=	0.0068 N/mm^2
	1 $tonf/in^2$	=	15.44 N/mm^2
	1 lbf/in^2	=	47.88 N/m^2
	1 $tonf/ft^2$	=	107.3 kN/m^2

CIVIL ENGINEERING - PRODUCTS

- **BRIDGE AND STRUCTURAL SUPPORT BEARINGS** (BS5400, EN1337, AASHTO)
- POT BEARINGS
- ELASTOMERIC BEARINGS
- SPHERICAL BEARINGS
- ROCKER BEARINGS
- GUIDED BEARINGS
- ROLLER BEARINGS
- RUBBER PAD BEARINGS
- RUBBER STRIP BEARINGS
- HIGHWAY APPROVED EXPANSION JOINTS
- SUB-SURFACE DRAINAGE
- DAMPERS & SHOCK TRANSMISSION UNITS
- BUILDING SEALS/JOINTS
- GROUTS & ADHESIVES

FOR APPLICATION IN:

Bridges; Steel Structures; Tall Buildings; Shopping Centres; Stadiums; Towers; Swing Bridges, Piers and Jetties; RORO Ferry Terminals; Building Vibration Isolation; Carparks; Walkways.



INDUSTRIAL PRODUCTS

- OFFSHORE BRIDGE AND TOPSIDE BEARINGS
- MACHINE SUPPORT BEARINGS
- PLATFORM SUPPORT BEARINGS
- ACOUSTIC BEARINGS
- ANTI-VIBRATION BEARINGS
- PETRO/CHEMICAL PIPE SUPPORT BEARINGS
- BUILDING SEALS/JOINTS
- WALL/FLOOR EXPANSION JOINTS
- SPECIALIST MOVEMENT SOLUTIONS
- LARGE TANK SUPPORTS
- STEEL SUPPORT BEARINGS
- LARGE MOVING STRUCTURES

FOR APPLICATION IN:

Ships; Ramps and Topsides; Oil Platforms; Submarines; Generator Supports; Conveyor Supports; Machine Mounts; Large Tank and Vessel Supports; Vibration Isolation; Pipeline Supports; Radio Telescopes.



RENEWABLE SERVICES

- OVERLAND PIPE SUPPORT BEARINGS
- ROTARY BEARINGS TECHNOLOGY
- TURBINE BEARING TECHNOLOGY
- TURBINE BLADE TESTING
- TURBINE FOUNDATIONS & SUPPORTS
- WAVE TECHNOLOGY
- SPECIALIST FABRICATION SERVICES
- VESSEL SUPPORT SYSTEMS
- FLOOD DEFENCE SYSTEMS
- SPECIALIST TEST EQUIPMENT - DESIGN TO INSTALLATION

FOR APPLICATION IN:

Hydro-Electric Plants; Wind Turbine Construction; Testing of Turbine Blades; Wave Power Devices; Reaction Vessels for Wave Power; Foundations for Offshore Turbines.



SERVICE - OPERATION & MAINTENANCE

- PRINCIPLE CONTRACTOR SERVICES
- SPECIALIST SUB-CONTRACT SERVICES
- BEARING & EXPANSION JOINT INSTALLATION
- BRIDGE INSPECTION/MAINTENANCE
- SPECIALIST SWING BRIDGE SYSTEMS
- EXPANSION JOINT INSPECTION/MAINTENANCE
- BRIDGE/STRUCTURAL JACKING, AND TEMPORARY WORKS
- INLAND WATERWAYS – LOCK GATES
- OFFSHORE STRUCTURAL INSPECTION/MAINTENANCE
- CABLE STAY INSPECTION/ MAINTENANCE
- POST TENSION SYSTEM MAINTENANCE
- LUBRICATION SYSTEMS
- SPECIALIST STRUCTURAL MONITORING

FOR APPLICATION IN:

Bridges; Steel Structures; Tall Buildings; Shopping Centres; Stadiums; Towers; Swing Bridges, Piers and Jetties; RORO Ferry Terminals; Building Vibration Isolation; Carparks; Walkways.



A world wide service offering effective solutions in:-

Inspection • Design • Manufacture • Supply
Installation • Commissioning • Planned Maintenance

Ekspan warrants that products described in this brochure are free from defects in workmanship and material but unless expressly agreed in writing Ekspan gives no warranty that these products are suitable for any particular purpose or for use under any specific conditions notwithstanding that such purpose would appear to be covered by this publication. Ekspan accepts no liability for any loss, damage or expense whatsoever arising directly or indirectly from the use of their products or recommendations. All business undertaken by Ekspan is subject to their standard conditions of sale, copies of which are available upon request. Ekspan products are subject to continual development and Ekspan reserves the right to make changes in the specification and design of their products without prior notice.

Issue 03 - May 2016

Expansion Joints & Seals are available from:

E&OE

EKSPAN LIMITED

Compass Works, 410 Brightside Lane, Sheffield S9 2SP UK
Tel: +44 (0)114 2611126 · Fax: + 44 (0)114 2611165

E-mail: enquiry@ekspan.co.uk Website: www.ekspan.com

constructionline

ISO9001 WCS UKAS QUALITY MANAGEMENT 0060

Certificate No. 3706