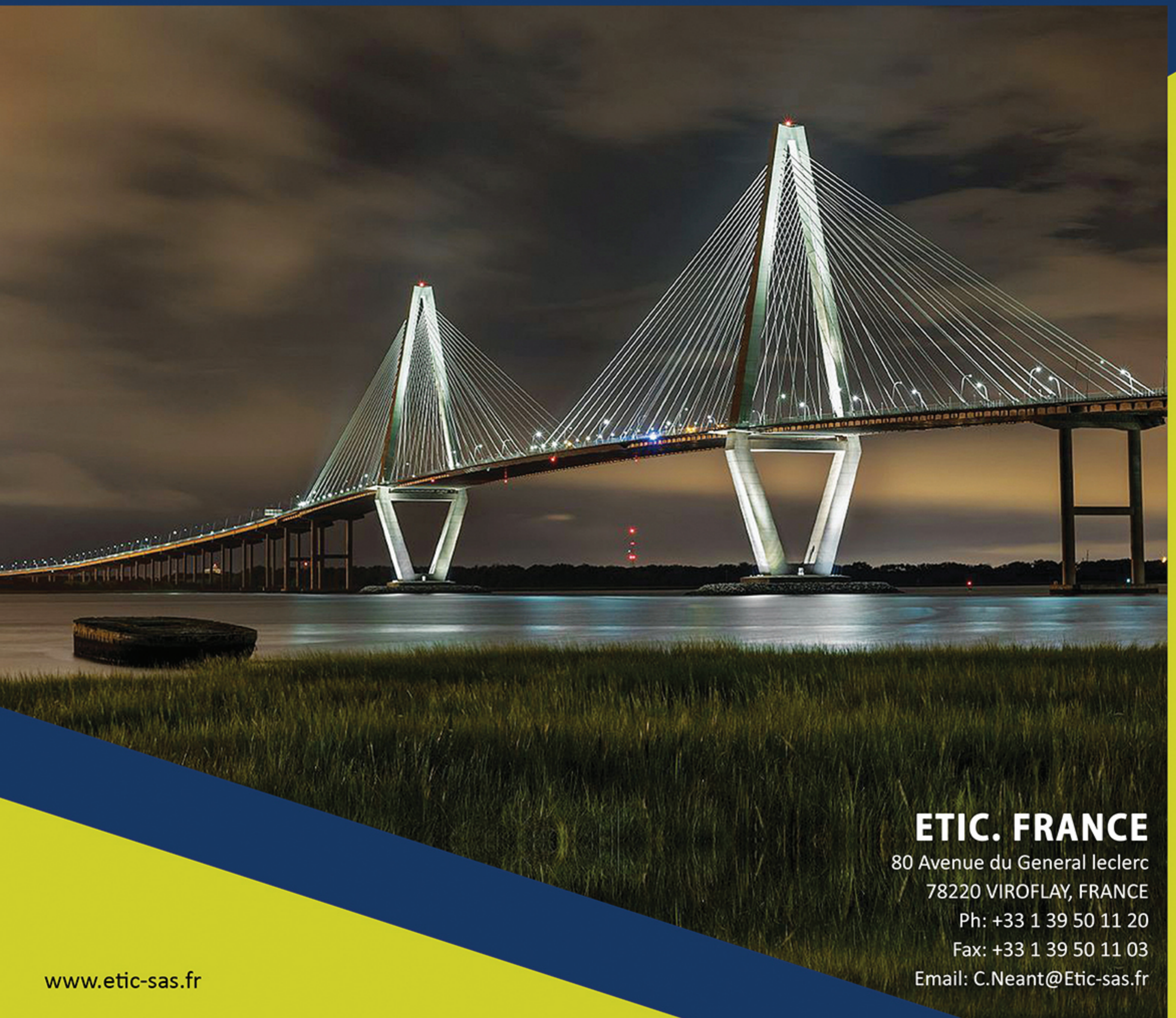




Expansion Joint For Bridges

Extruded Alloy Aluminium Section



ETIC. FRANCE

80 Avenue du General leclerc

78220 VIROFLAY, FRANCE

Ph: +33 1 39 50 11 20

Fax: +33 1 39 50 11 03

Email: C.Neant@Etic-sas.fr



A subsidiary of
demathieu bard
CONSTRUCTION

Demathieu bard is the 5th largest construction company of France.
Having annual turnover of 200 Million USD.

DEMATHIEU BARD Construction

17 rue de Venizélos - BP 80330
F-57953 Montigny les Metz Cedex

has been assessed and certified as meeting the requirements of

ISO 9001:2008 ISO 14001:2004

for the following activities

**design, construction and repair of buildings,
civil engineering structures, sanitation works,
land and road utilities, industrial civil works and tunnels**

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2008 / ISO 14001:2004 requirements may be obtained by consulting the organization

This certificate is valid from 11/11/2012 until 10/11/2018

This is a multi-site certification
Additional site details are listed on the subsequent pages

Authorised by



TÜV SAAR CERT Certification Body of TÜV Saarland e. V.
Am TÜV 1, 66280 Sulzbach (Germany)
t +49 (0)68 97-506-286 f +49 (0)68 97-506-228 www.tuev-saar-cert.de



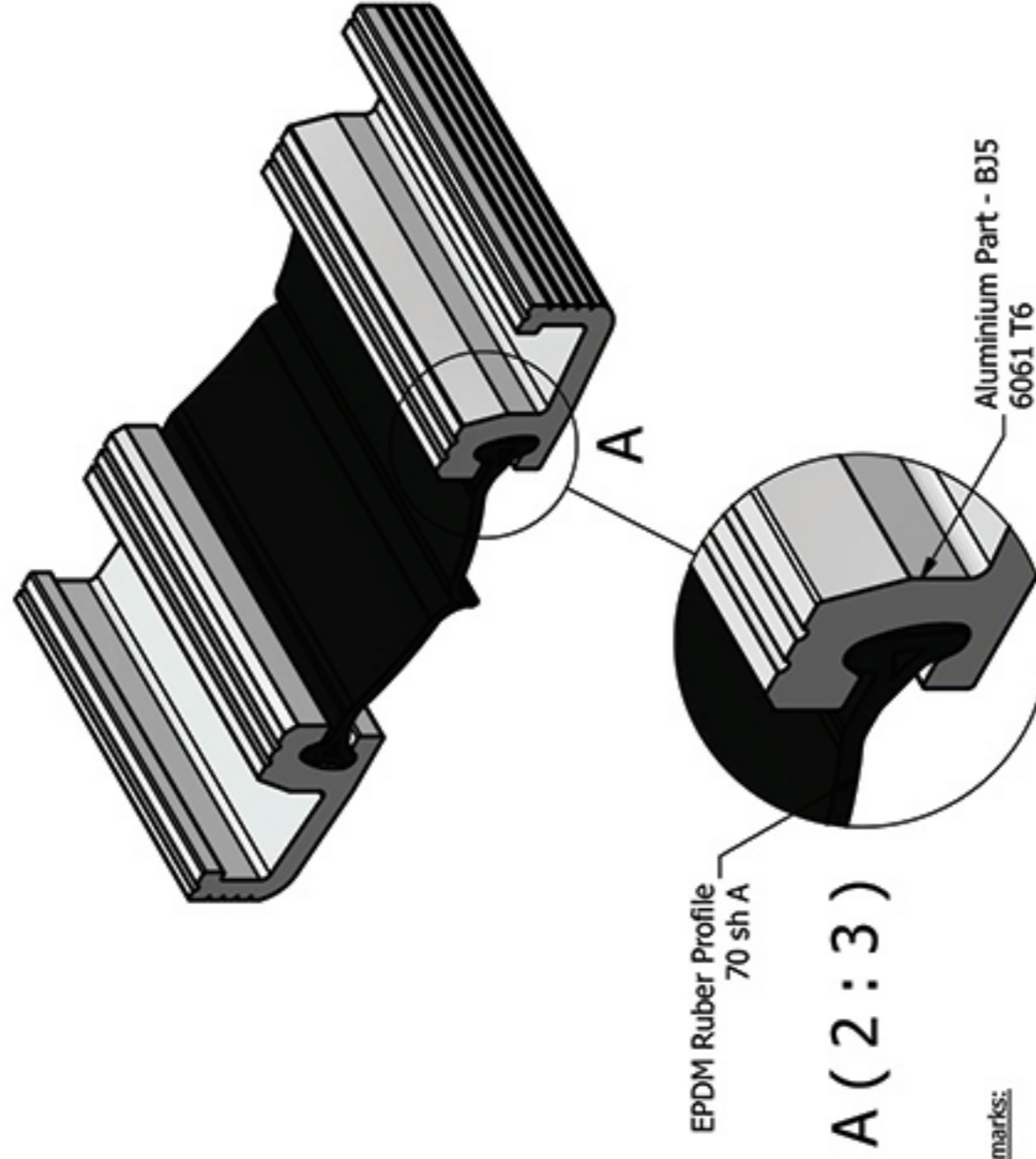
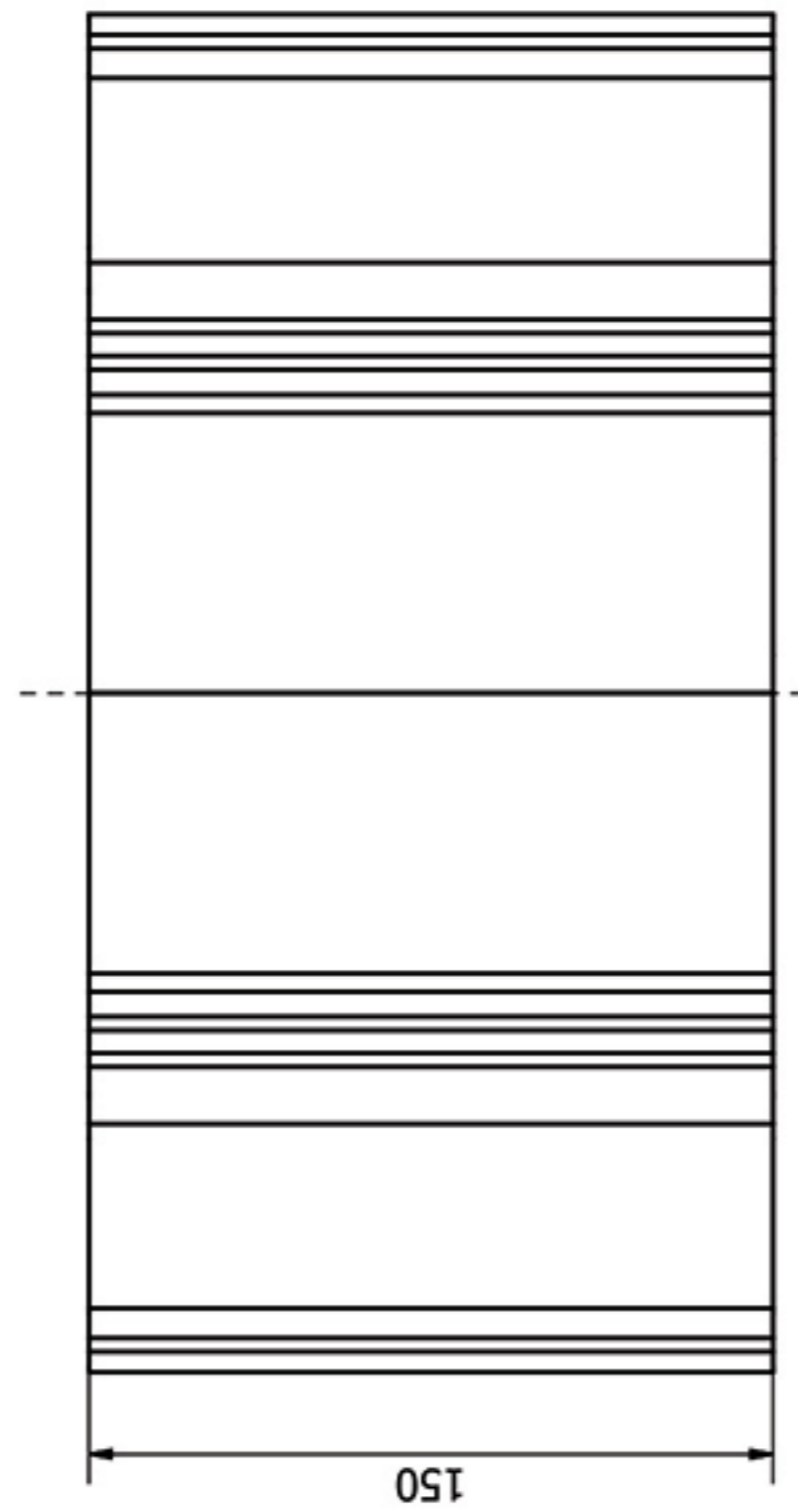
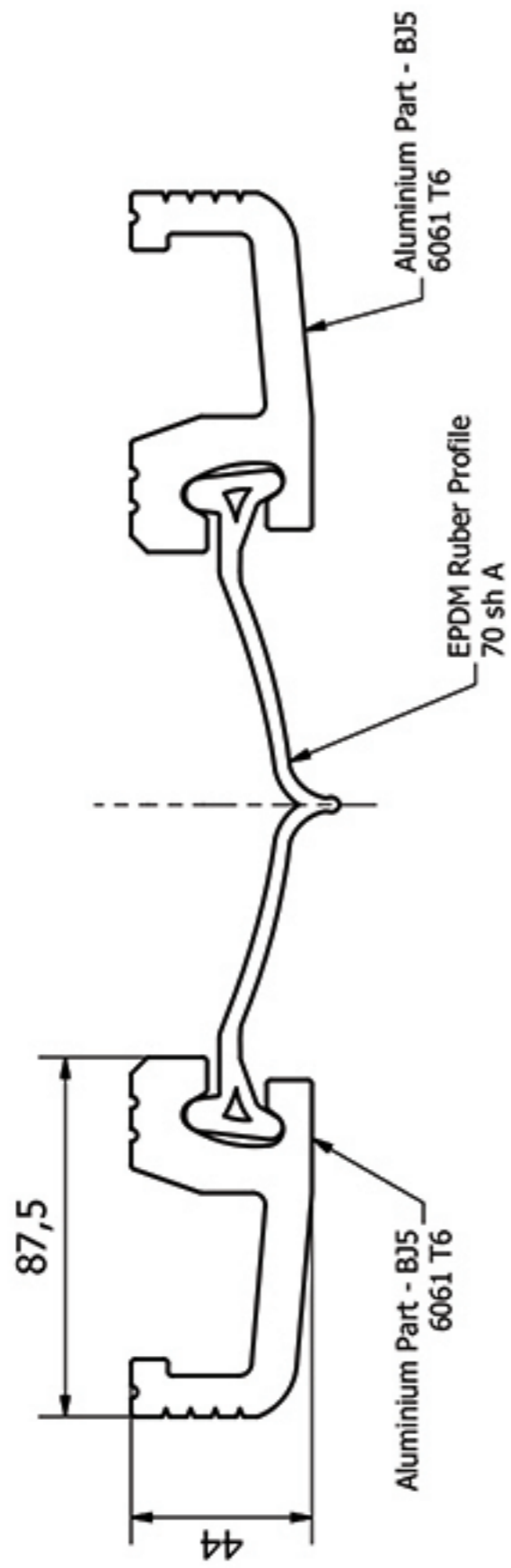
TGA-ZM-05-08-00
TGA-ZM-05-08-60



Expansion Joint SBJ 5

ETIC Expansion Joint SBJ-5

PROVISION OF A MODEL PROTOTYPE "BJ5" FOR AGREEMENT IN PRINCIPLE



Remarques/Remarks:

Matière : ...

Document de référence :

Pièce : N/A

Tolérances générales : ISO 2768-m

Divers : VALIDATION

Approximate weight: 1,80 kg

Etat par / designed	12/07/2016	N.L.K.				
Vérifié par / Checked						
Approuvé / approved						
REV	DESCRIPTION	DATE	APPR.			
A.	Première diffusion	12/07/2016				
Echelle/Scale			1 : 3	Dimension en/in (mm)		
Format original			A3	Folio		
Original size			A3	1 / 1		
PAKISTAN MAQUETTE SBJ5 A3						
Numéro de plan/ Drawing Number: EN_BJ5-1A_MAQUETTE						
Ce plan est la propriété exclusive de ETIC SAS. Tous droits réservés. Les informations contenues dans ce plan sont protégées par copyright. Aucune de ses parties ne peut être utilisée ou reproduite à d'autres fins. This drawing is the property of ETIC SAS. All rights reserved. The informations contained on this drawing is protected by copyright. No part of it may be used or reproduced for other purpose.						



SBJ - 5 Expansion Joint



SBJ - 5 Filling of Black Flexible Epoxy



SBJ - 5 Expansion Joint at Rehabilitation of Lahore-Islamabad Motorway (M-2)



SBJ - 5 Rehabilitation of Lahore Islamabad Motorway Project (M-2)



SBJ - 5 Installed at M-9 Bridge # 08



SBJ - 5 Installed at M-9 Bridge # 09



SBJ - 5 Installed at M-9 Bridge # 10



SBJ - 5 Installed at M-9 Bridge #11



SBJ - 5 Expansion Joint Inspection at M-2



SBJ - 5 We provide 10 years life warranty of our product if it is installed by our installation team



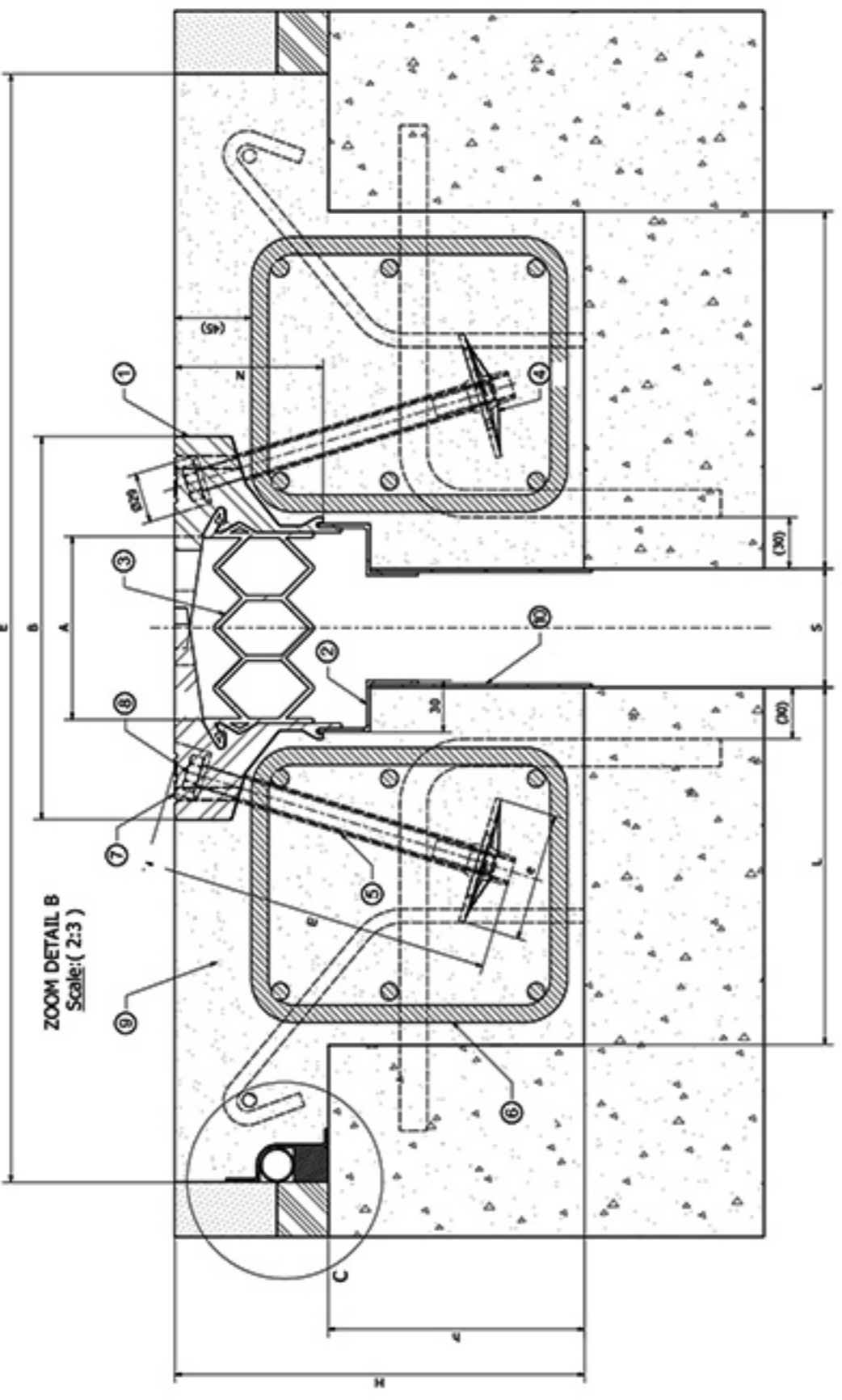
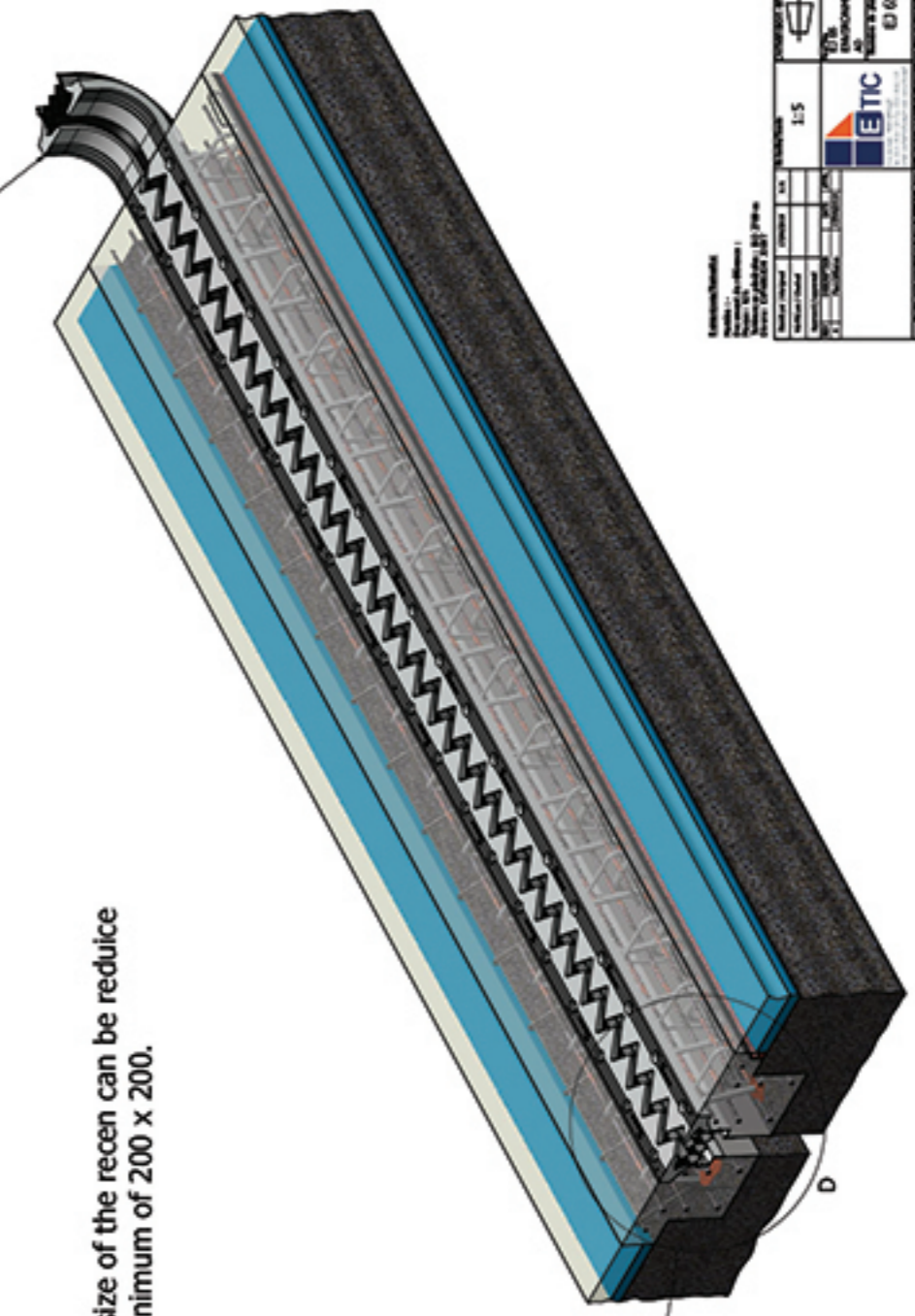
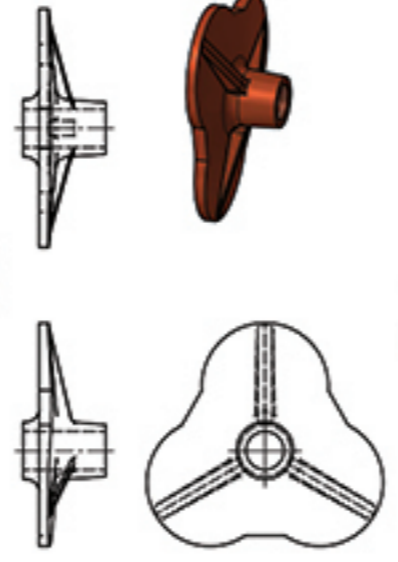
Expansion Joint EJ 65

EXPANSION JOINT ETIC - EJ 65

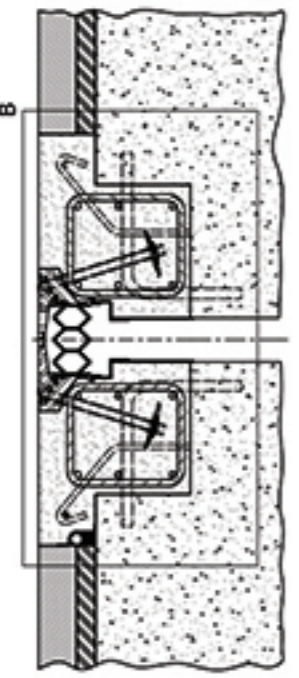
Code	Designation	Value	Observation
A	Quantity	100 / 100	Variable
B	Width of joint	65	Variable
C	Depth of concrete	100	Variable
D	Depth of concrete	100	Variable
E	Form width of section	100	Variable
F	Compression of resilient	20 / 25 *	Variable
G	Height of seal by seal	20 / 25 *	Variable
H	Thickness of concrete	20 / 25 *	Variable

Code	Designation	Observation
1	Upper metallic element	EN 10222
2	Lower metallic element	EN 10222
3	Resilient elastomer profile	EN 12550
4	Sealing sheet	EN 12550
5	Sealing sheet	EN 12550
6	Sealing sheet	EN 12550
7	Sealing sheet	EN 12550
8	Sealing sheet	EN 12550
9	Sealing sheet	EN 12550
10	Sealing sheet	EN 12550

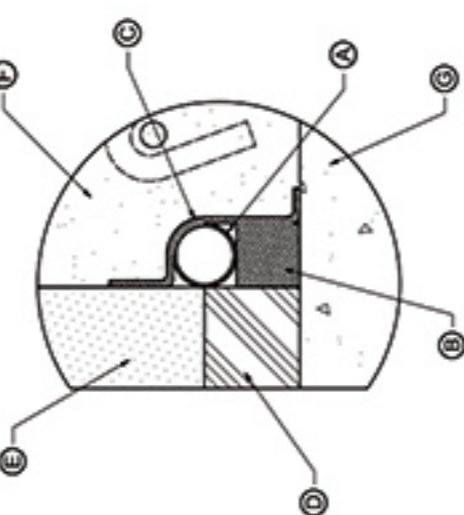
zoom up. ©
Angrage - Triflélic
Escale: 1



ZOOM DETAIL B
Scale: (2:3)



ZOOM DETAIL C
Scale: (1:1)
WATER DRAINAGE



* - RAISED AND WATER DRAINAGE

The raised is generally positioned at the lowest point of the cross section. This is a metal part (part of the curved profile) for elevating the elastomer profile. It is anchored in the structures in border thickness.

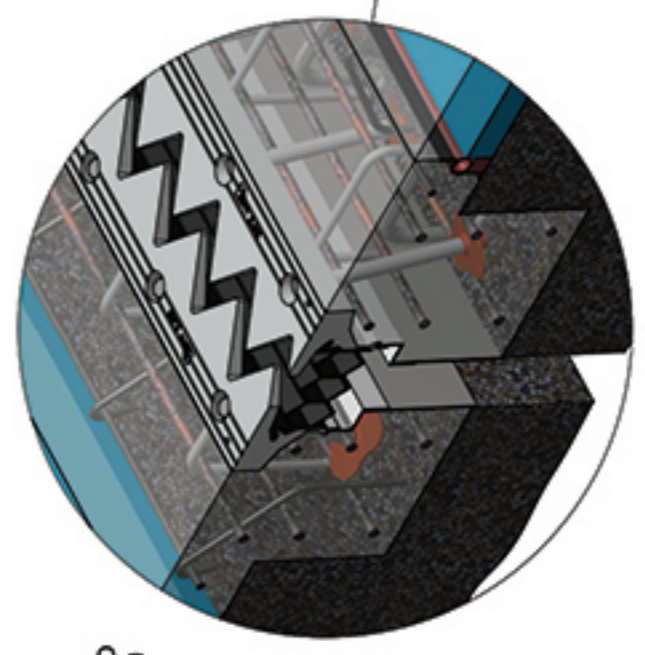
Code	Designation
A	SEALING SHEET
B	SEALING SHEET WITH TAMPERS ALUMINIUM
C	SEALING SHEET WITH TAMPERS ALUMINIUM
D	SEALING SHEET WITH TAMPERS ALUMINIUM
E	SEALING SHEET WITH TAMPERS ALUMINIUM
F	SEALING SHEET WITH TAMPERS ALUMINIUM
G	SEALING SHEET WITH TAMPERS ALUMINIUM
H	SEALING SHEET WITH TAMPERS ALUMINIUM
I	SEALING SHEET WITH TAMPERS ALUMINIUM
J	SEALING SHEET WITH TAMPERS ALUMINIUM

NB:

For special application, the size of the recen can be reduce if no draining pipe with a minimum of 200 x 200.

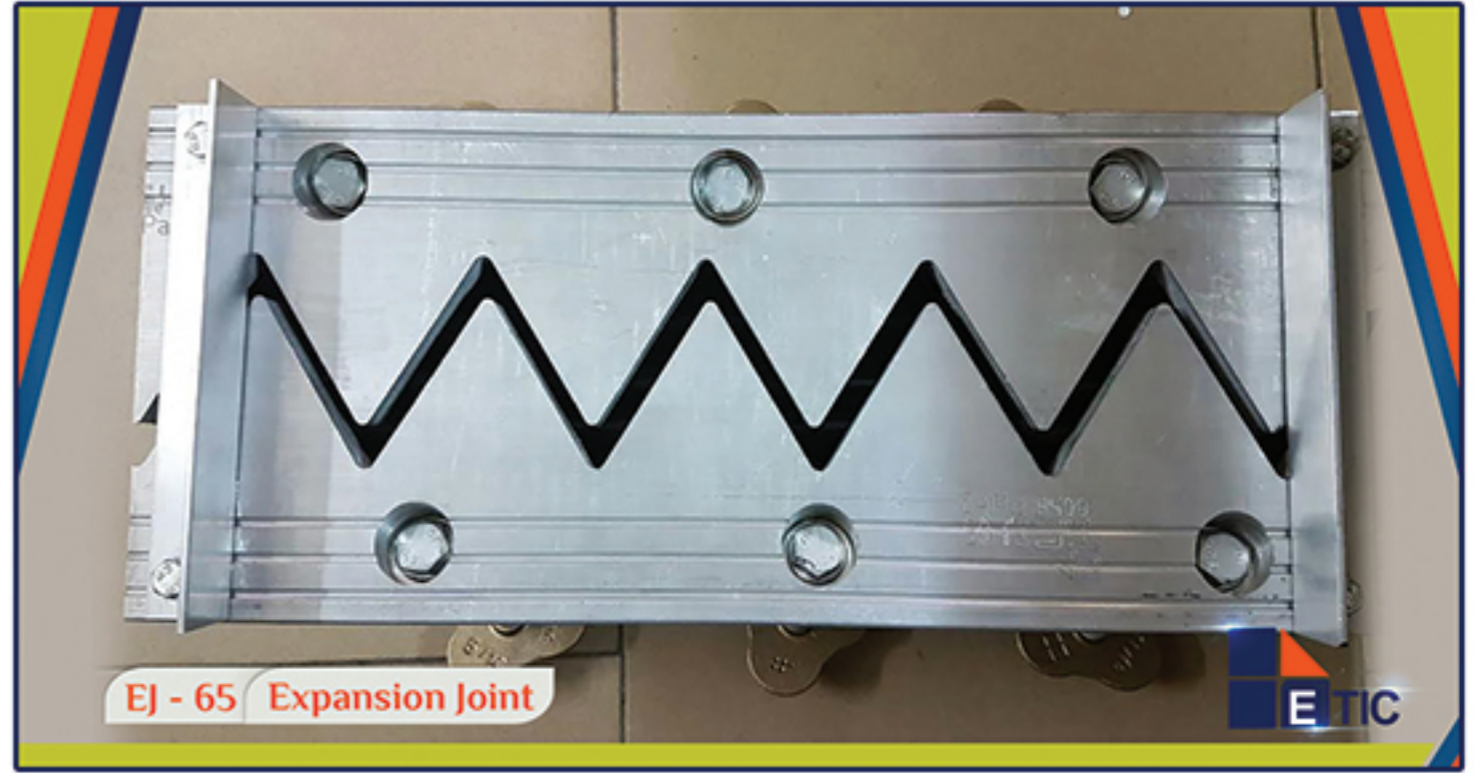
NB:

This drain will be continuously along the cross-section and will be opening out in end of the line via a nozzle. It possible to evacuate the water to the collector on reversion.



ZOOM DETAIL D
Scale: (1:3)

ETIC	1:5
ETIC	1:1
ETIC	1:1
ETIC	1:1



Expansion Joint EJ 50s & EJ 80s


SOLUTION CURRENTLY

CASE 1
Watertightness with asphalt and prefabricated sheet on bridge


CASE 2
Watertightness by membrane on bridge

EXTRUDED ELASTOMERIC PROFILE

Section



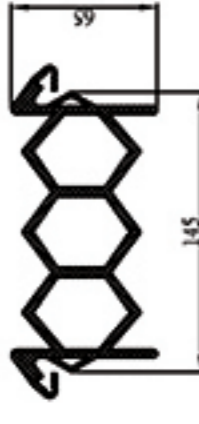
DRAIN (if necessary)
Schematic representation



Stainless steel spring ø18

EXTRUDED ELASTOMERIC PROFILE

Section



ALTERNATIVE EJ 80 S

Elastic profile 80

SUMMARY PERSPECTIVE
with upstand & joint on footpath

Ce dessin est la propriété d'ETIC. Toute reproduction est interdite sans notre autorisation.

GENRE	Libre émission	09-2713 A
PROJET		
DESIGNATION		
MATRIEL		
Expansion joints	EDITION N° PDe - 001	REV. A
EJ 50 S & EJ 80 S	FORMAL A3	COL. NTS
		ATTACHE

3, rue de Marly - 78 000 VERSAILLES - FRANCE
 Tél.: 01 39 50 11 20 - Fax: 01 39 50 11 03
 mail: contact@etic-sas.fr www.etic-sas.fr



EJ - 50s Expansion Joint



EJ - 50s Expansion Joint



EJ - 50s Has Been Installed at Koral Chowk Islamabad Express Highway.



EJ - 50s Has Been Installed at Koral Chowk Islamabad Express Highway.



EJ - 50s Expansion Joint



EJ - 50s Expansion Joint



EJ - 50s Expansion Joint



EJ - 50s Has Been Installed at Koral Chowk Islamabad Express Highway.



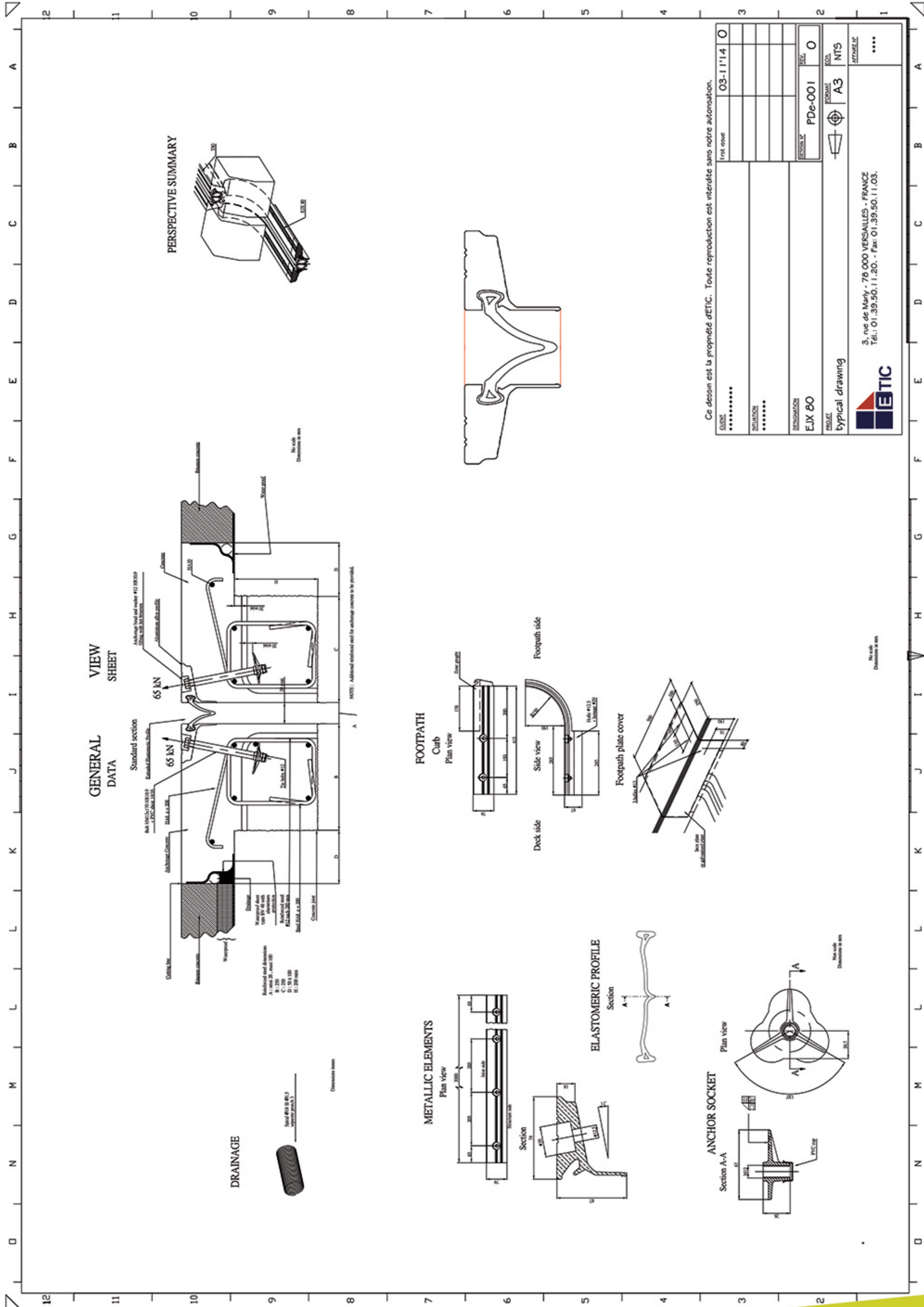
EJ - 50s Expansion Joint



EJ - 50s Expansion Joint

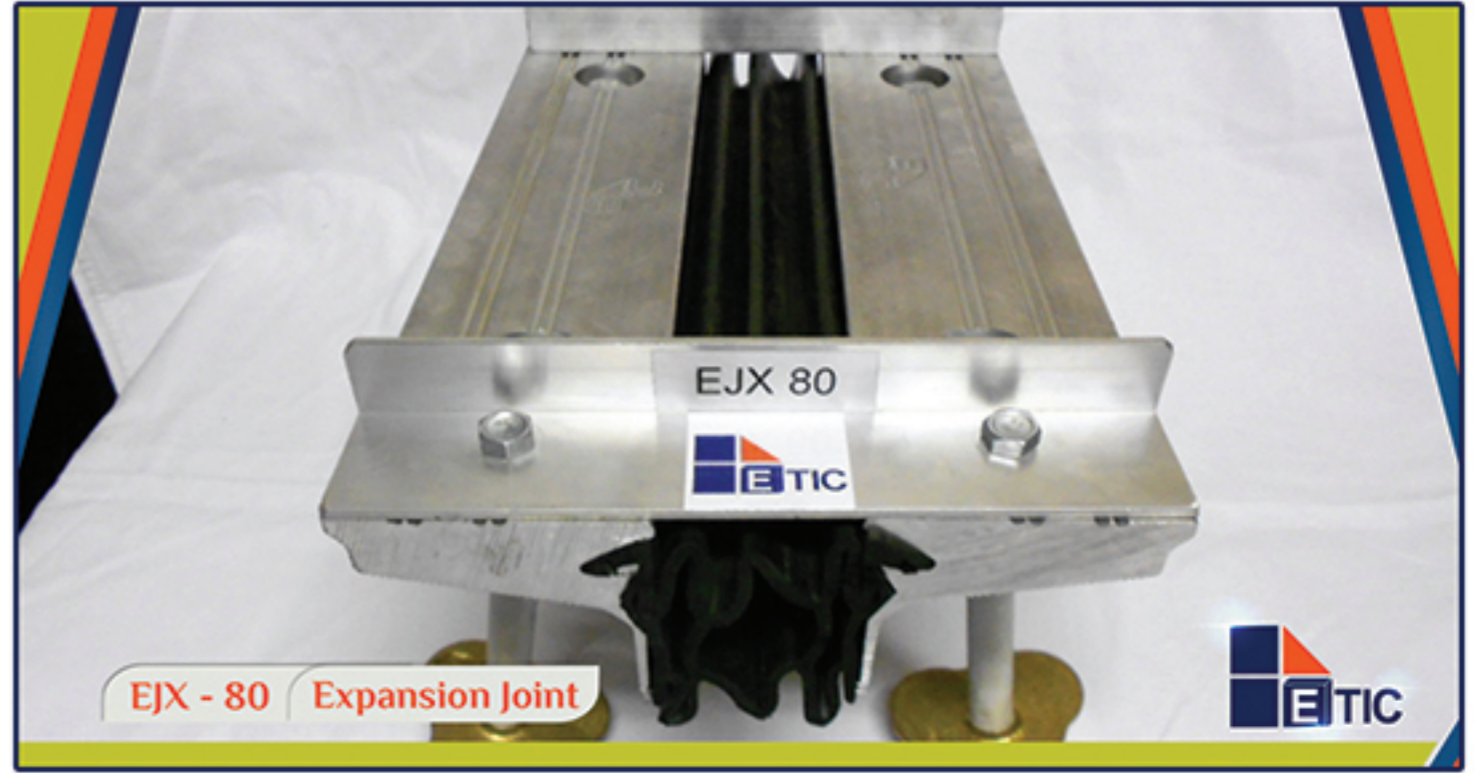


Expansion Joint EJX 80 & EJ 50





EJX - 80 Expansion Joint



EJX - 80 Expansion Joint



EJX - 80 Expansion Joint



EJX - 80 Bridge Recess



EJX - 80 Expansion Joint



EJX - 80 Expansion Joint



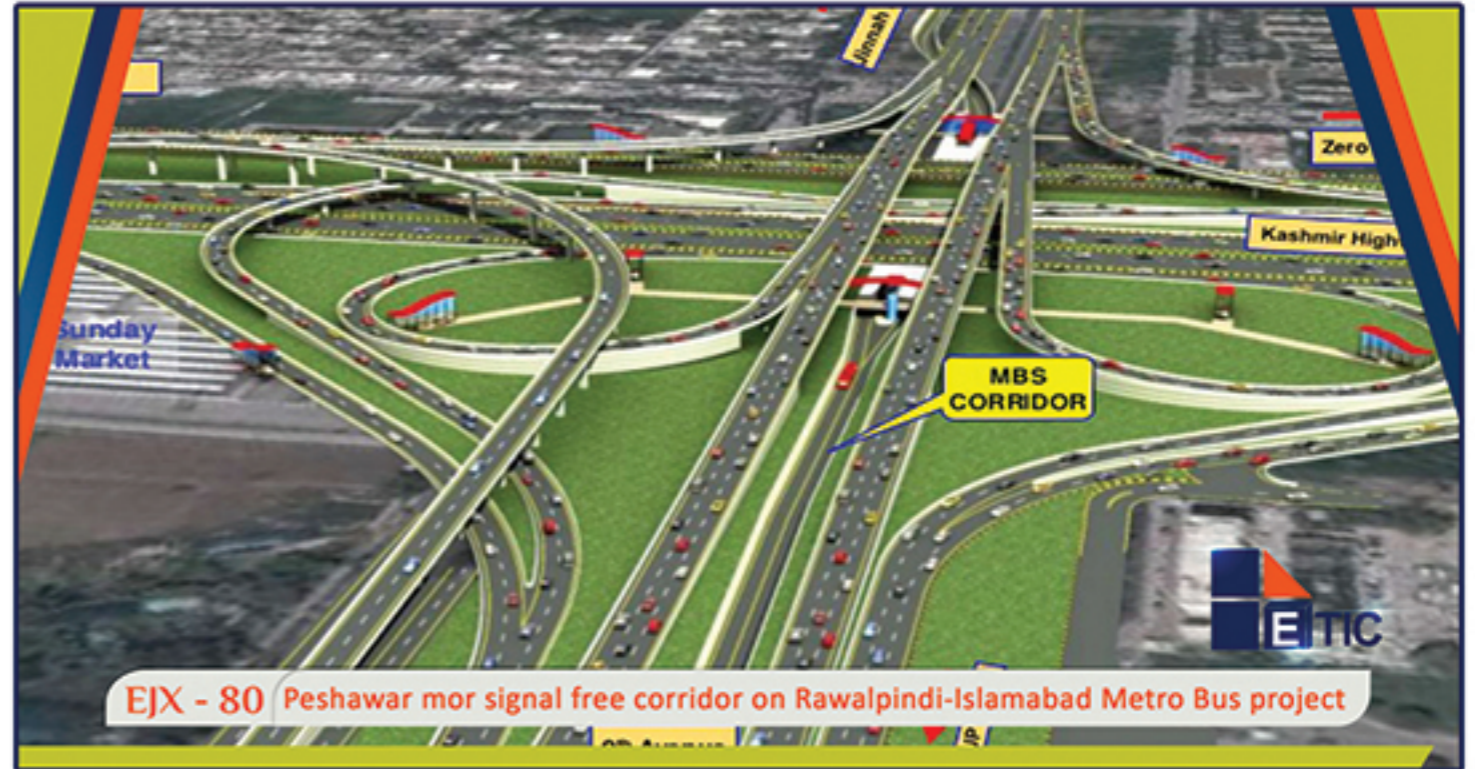
EJX - 80 Expansion Joint



EJX - 80 Expansion Joint



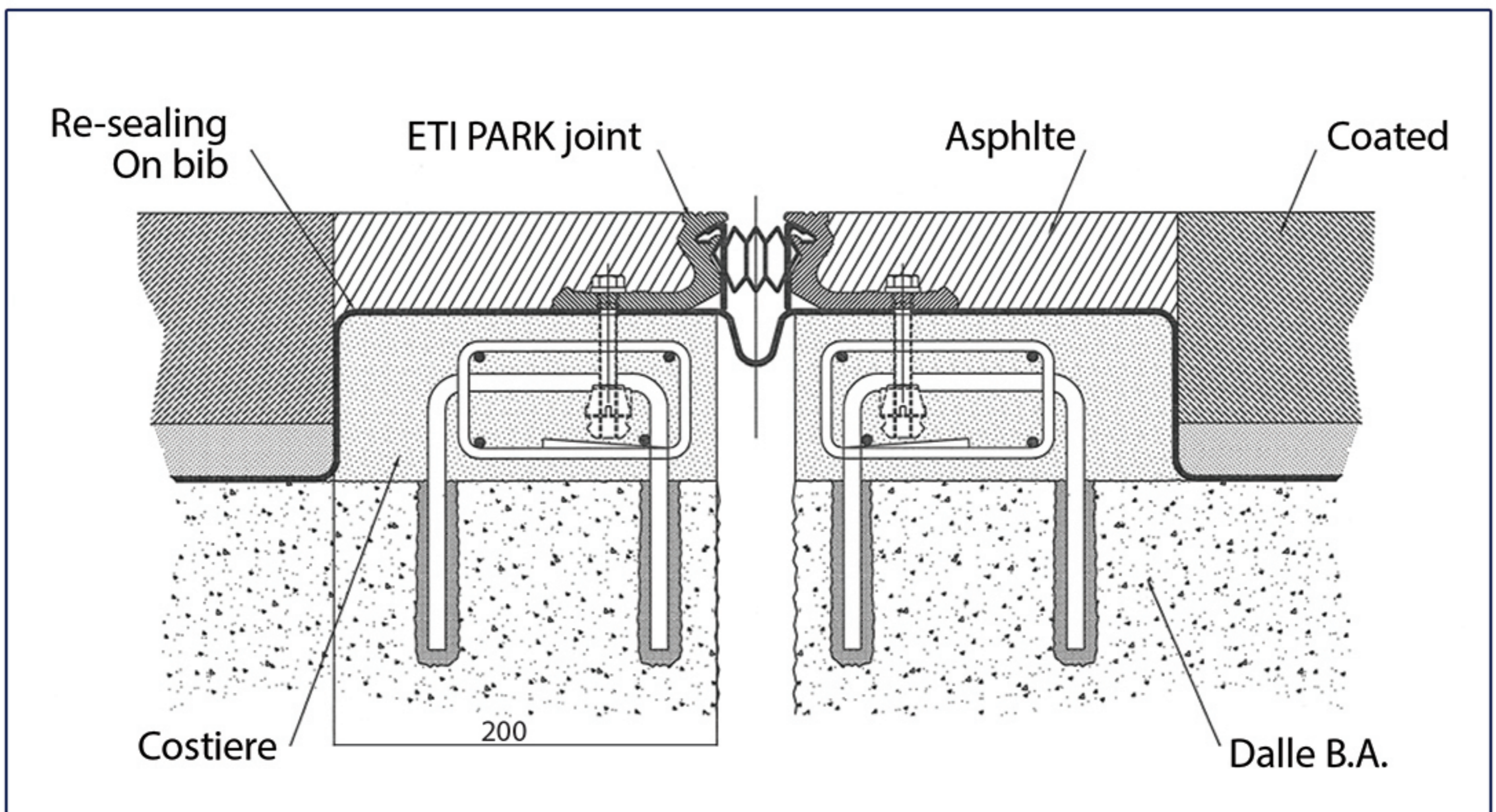
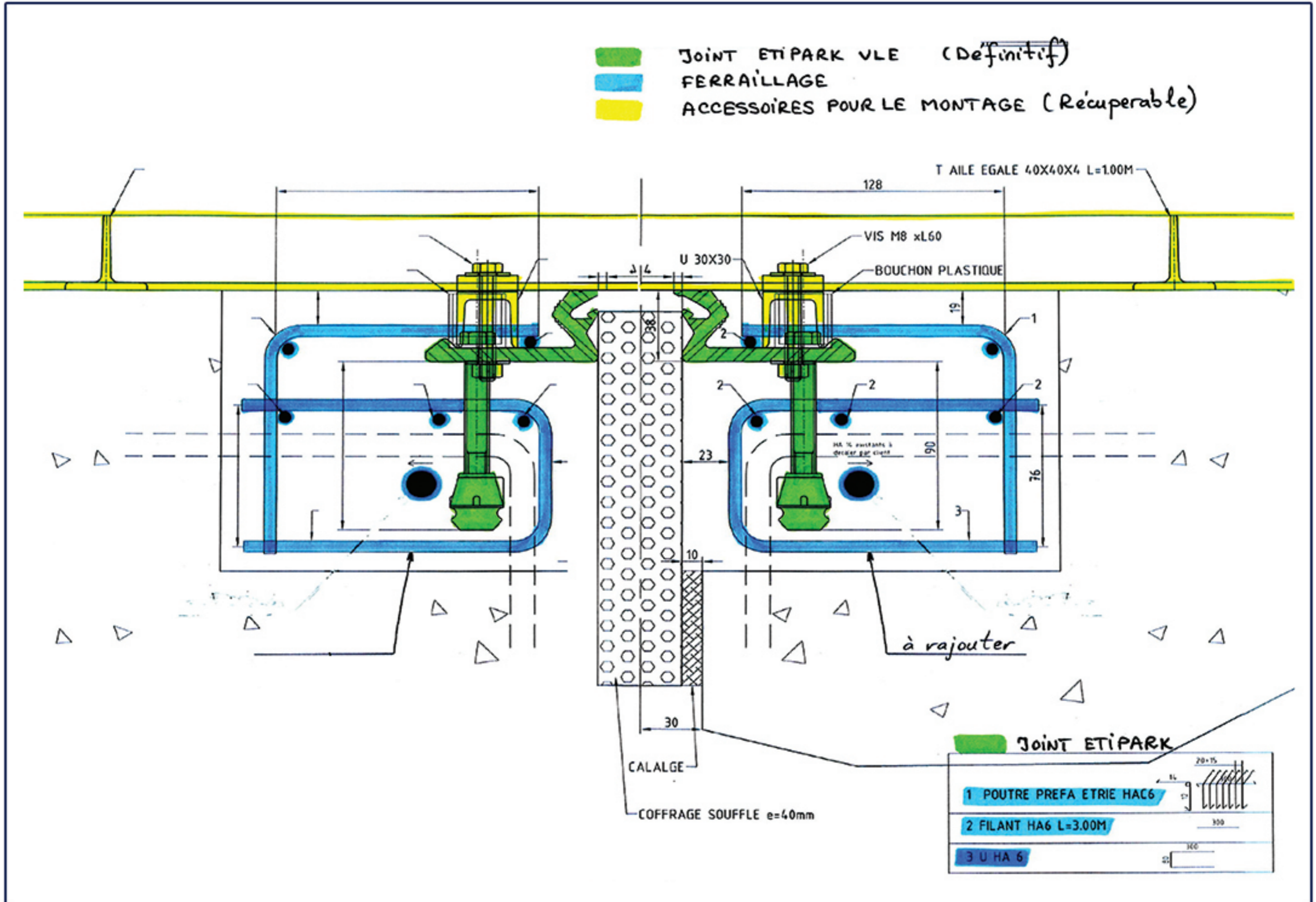
EJX - 80 Installation at Aziz Chowk Flyover Gujranwala



EJX - 80 Peshawar mor signal free corridor on Rawalpindi-Islamabad Metro Bus project



Expansion Joint ETI Park





NHA Standards for Expansion Joint

ASTM Code	Test Discription	Methodology / Testing Method	Units	Satndard Values / Units
D-412	Tensile Strength	Standard	Kgs/cm2	127 (min)
	Elongation at break	Standard	Percent	400 (min)
D-2240	Hardness(Durometer-A)	Standard	Points	45 ± 5
D-395 METHOD-B	Compression Set	22Hrs at 70°C	Percent	20 (max)
D-746	Low temperature	At 40°C	Observation	Not Brittle
D-1149	Ozone resistance test	Exposure to 100 PPHM Ozone for 70 Hrs at 38°C. Sample under 20%	Observation	No cracks
D-470	Oil Deterioration	Volume increase after soaking in ASTM oil No. 3 for 70 Hrs at 100°C	Percent	120 (max)

INSTALLATION METHODOLOGY

1. Construction and Function of the Expansion Joint

This expansion joint is a simplified version of modular Transflex Multiflex expansion joints for small movement capacities. The structure of the joint is a single gap joint type and consists of two edge profiles which are fastened above the reinforcement frame to the concrete structure. The horizontal and vertical forces are carried transmitted through edge structures and their anchoring into the adjacent concrete structures.

2. Movement Capacity of the Expansion Joint

The elastic sealing profile of the joint allows movements of the expansion joint in all 3 directions (e_x , e_y , and e_z) and rotations over all axes (x , y , and z).

3. Preparation of the Joint Gap (Recess)

The recess must be adjusted to the size and shape of the expansion Joint Check the existing reinforcement according to drawings. Missing reinforcement is to be replaced by steel rods (Rebar), which are placed at relevant depths. The recess shall be thoroughly cleaned. If required, the surface is to be roughened by picking. All loose material has to be removed with air pressure prior to concreting.

4. Shuttering Plates

The shuttering plates have to be installed in such a manner that they are close to the recess after lowering the expansion joint. If required, the plates should be attached to the reinforcement by using a fastening wire.

5. Filling of Gap

Fill the gap between deck slabs with Thermo pore sheets covered with ply from both sides. Thermo pore sheet thickness should be as per gap.

6. Preparation of Expansion joint (Assembling)

Prepare Expansion joint modules by assembling and installing the Anchoring system provided by the manufacturer accordingly. Expansion joints anchoring system may be available in shape of welded anchor bars or in shape of Nut+Bolts as in picture.

7. Placement of Expansion joint and Leveling

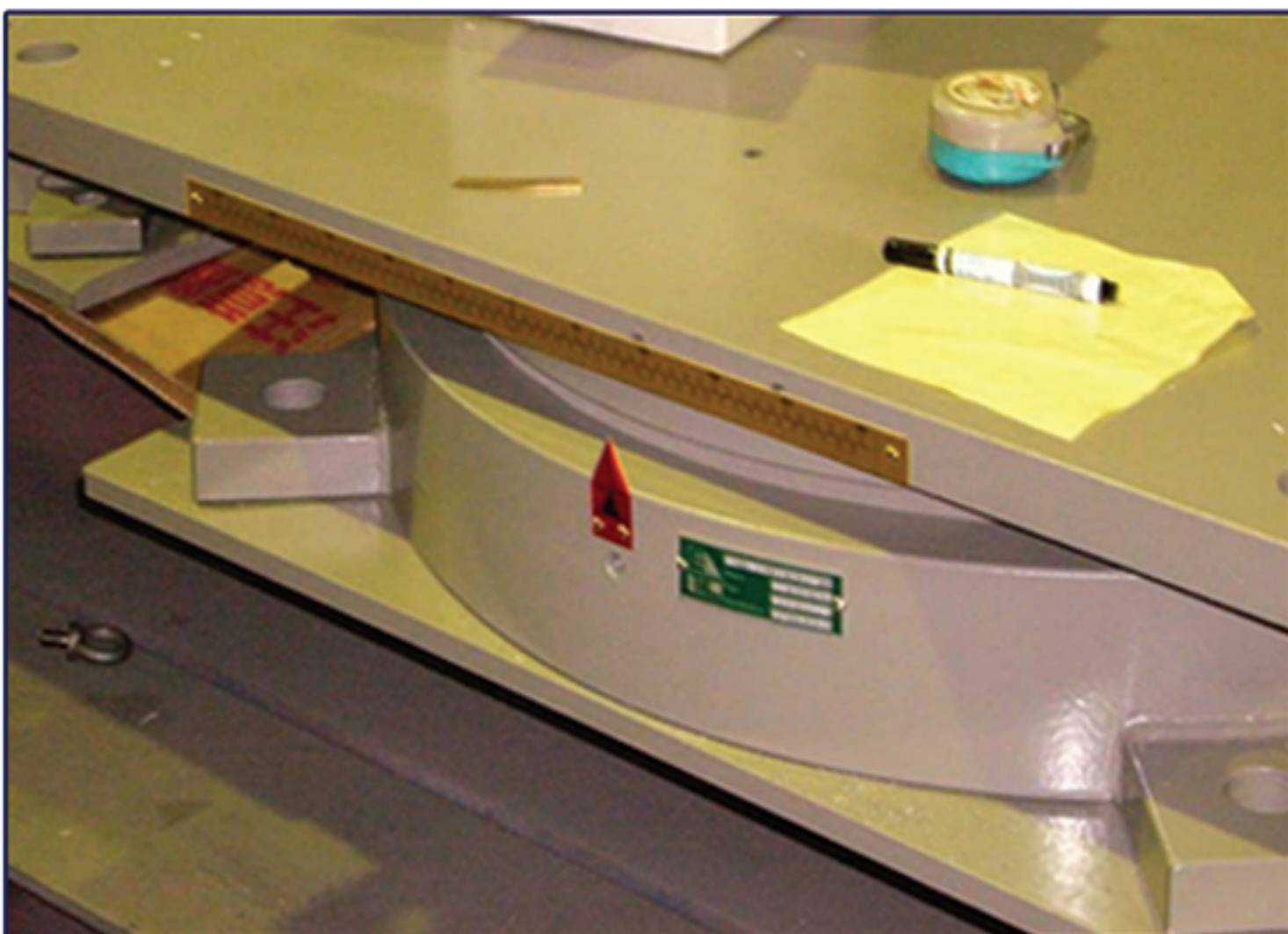
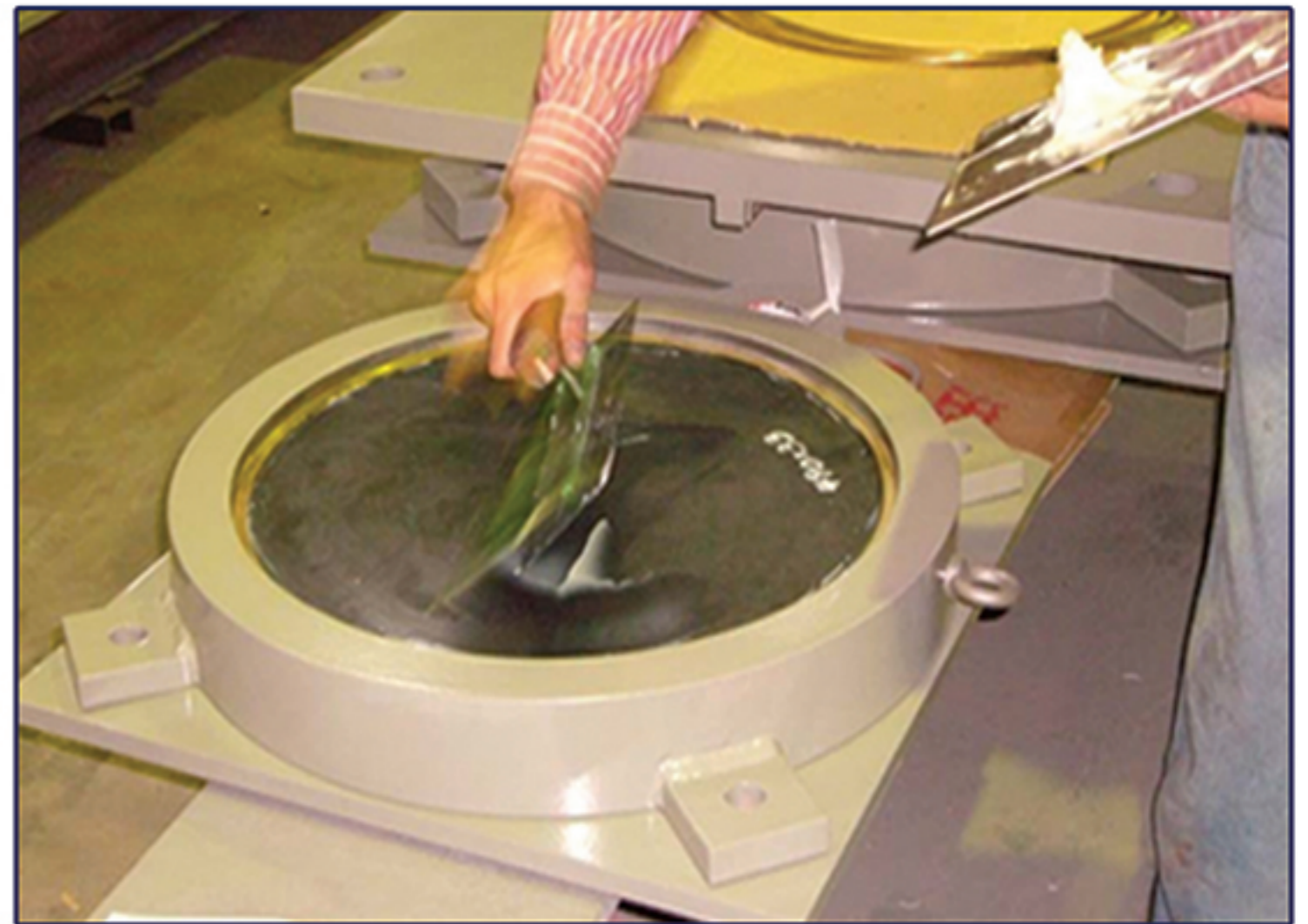
Place expansion joint on the block out and level using leveling bars as in pictures.

8. Concreting

Before applying the concrete, the position of the expansion joint has to be recorded. Only after proper installation the Engineer shall give permission to fill in the concrete.

ETIC Pot Bearing

Manufacturing Mark

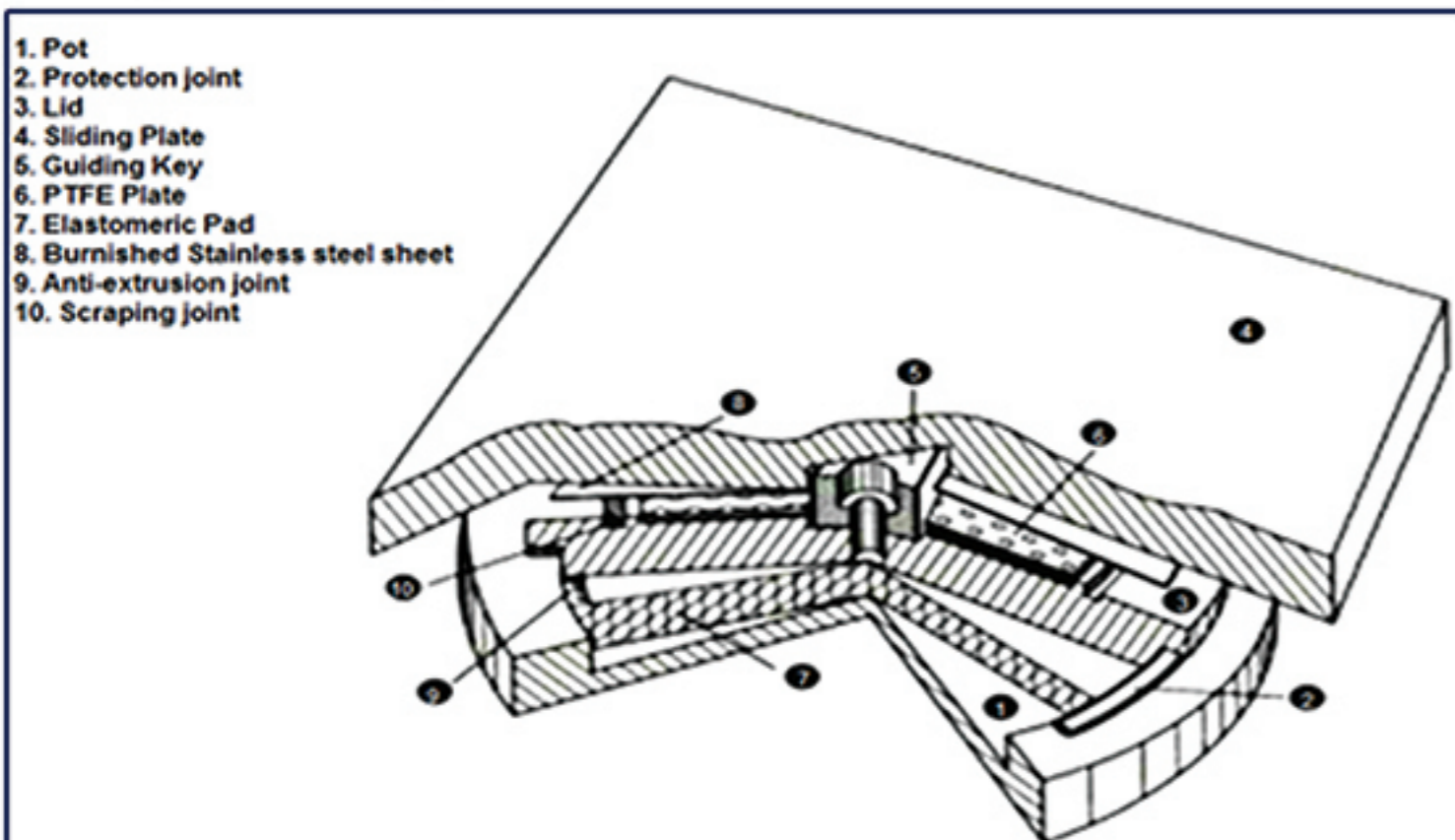


ETIC Pot Bearings

We design and oversize our bearings (Elastomeric, pot, spherical, special devices) according to several standards. We are handling lifting bearing technique from last 20 years.



ETIC is a professional team of Engineer and technicians at your disposal. with more than 25 years of experience, we are able to provide you technical solutions, adopted to your needs with additional devices.



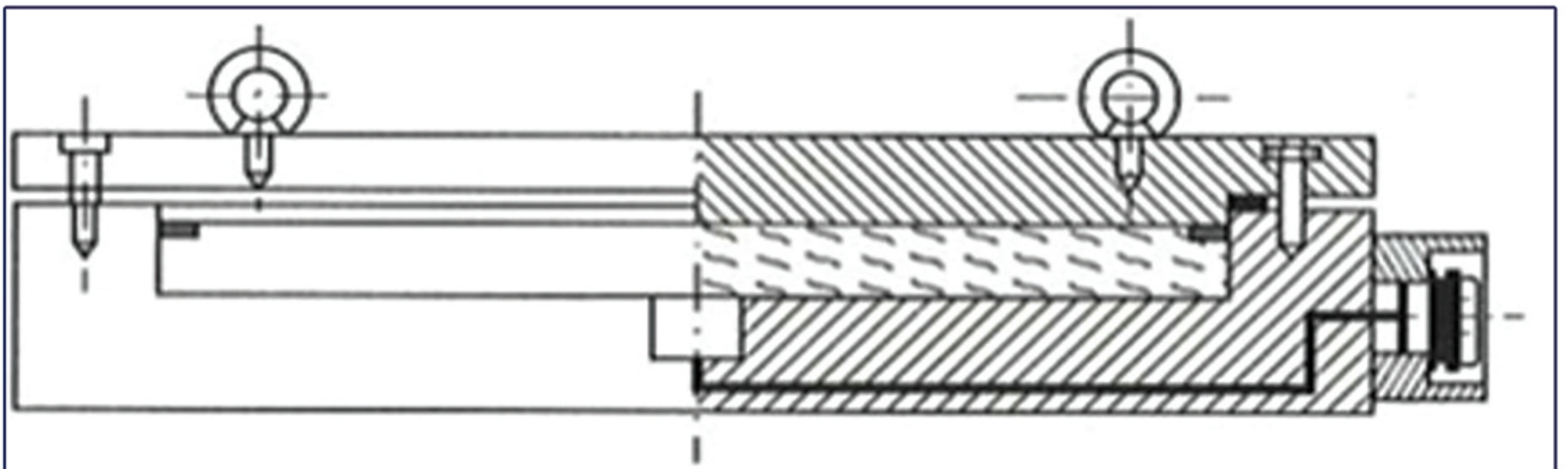
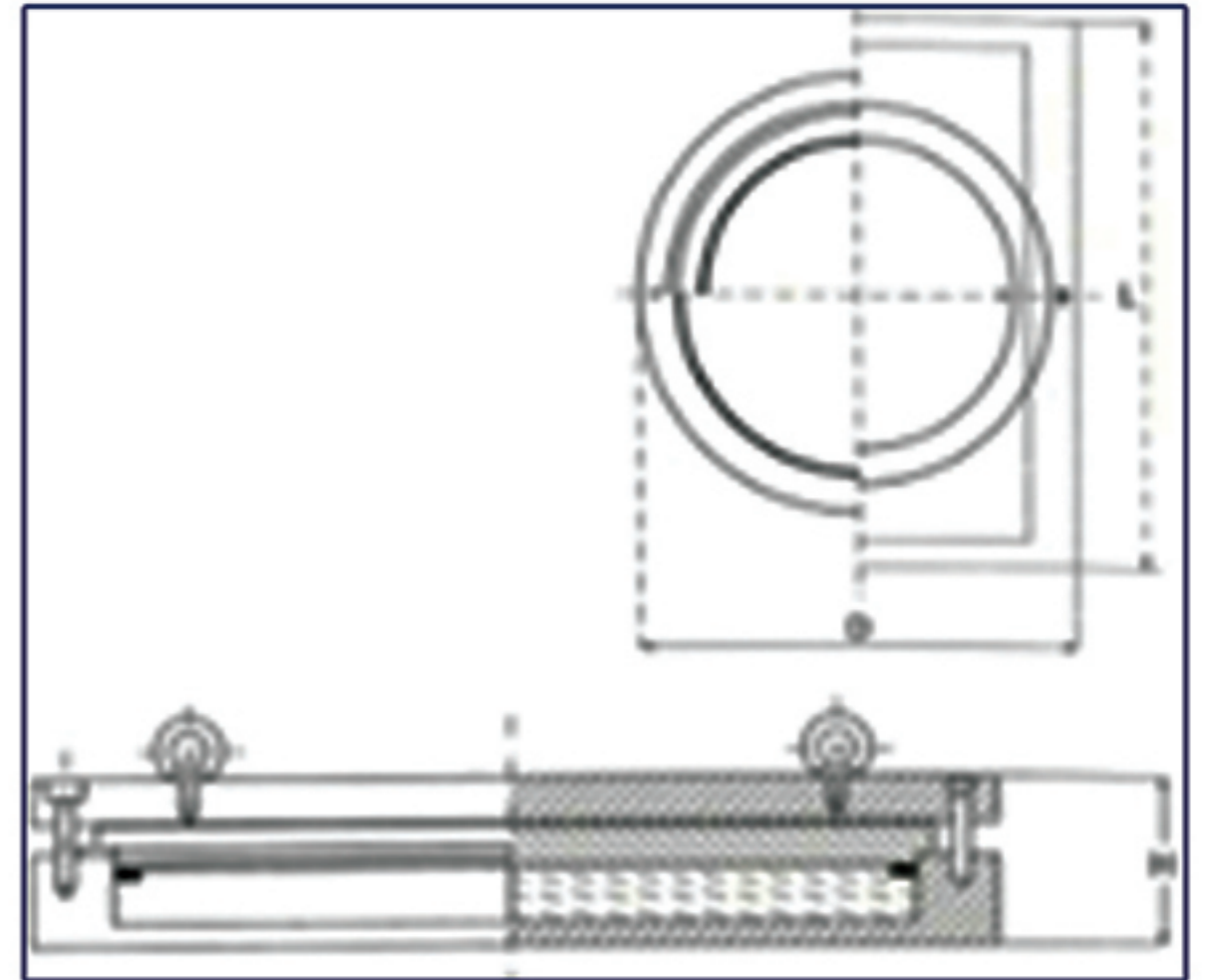
ETIC produce Inject able pot bearing , spherical Bearings. Supporting mega beams are produced on orders.

FS supports Multidirectional

POTETIC								
FREE SLIDING BEARINGS (FS) standard - béton/béton								
NOMINAL	Nmax ELS kN	Hmas ELS kN	Nmax ELU kN	Hmax ELU kN	Pot ϕ mm	Plate Lxl mm	height mm	weight kg
700	704	27	980	40	220	320x220	95	35
1 000	1 060	40	1 476	60	260	360x260	90	45
1 250	1 257	47	1 750	72	280	380x280	95	55
1 800	1 789	68	2 490	102	320	420x320	95	70
2 350	2 335	88	3 250	133	360	460x360	95	85
3 000	3 017	114	4 200	172	400	500x400	99	100
3 500	3 434	130	4 780	195	420	520x420	99	110
4 500	4 670	177	6 500	266	500	600x500	108	160
5 000	5 029	191	7 000	286	540	640x540	118	205
6 000	6 035	229	8 400	344	560	550x560	118	220
6 500	6 538	248	9 100	372	600	700x600	123	260
8 000	8 011	304	11 150	456	640	740x640	132	315
9 000	9 125	346	12 700	520	690	790x690	137	375
10 000	10 059	382	14 000	573	730	830x730	141	430
11 500	11 532	438	16 050	657	780	880x780	146	505
12 500	12 574	477	17 500	716	820	920x820	151	572
13 500	13 508	513	18 800	770	850	950x850	151	610
15 000	14 993	576	20 760	865	890	990x890	160	700
16 000	16 022	608	22 300	913	920	1020x920	160	740
17 500	17 506	665	24 365	998	970	1070x970	169	875
19 000	19 040	723	26 500	1 085	1 000	1100x1000	174	950
20 000	20 046	761	27 900	1 142	1 030	1130x1030	174	1 005
21 000	21 052	800	29 300	1 200	1 060	1160x1060	178	1 100
23 000	23 006	871	31 920	1 307	1 110	1210x1110	188	1 275
24 500	24 505	931	34 000	1 396	1 140	1240x1140	193	1 390
26 000	25 974	987	36 150	1 480	1 180	1280x1180	197	1 505
28 000	28 022	1 064	39 000	1 597	1 240	1340x1240	206	1 725
30 000	30 177	1 146	42 000	1 720	1 270	1370x1270	211	1 865
32 000	32 089	1 219	44 660	1 829	1 320	1420x1320	211	2 005
35 000	35 063	1 332	48 800	1 998	1 370	1470x1370	225	2 325
40 000	40 093	1 523	55 800	2 285	1 480	1580x1480	239	2 900
45 000	45 051	1 712	62 700	2 568	1 560	1660x1560	257	3 445
50 000	50 080	1 903	69 700	2 854	1 660	1760x1660	266	4 070
55 000	55 325	2 102	77 000	3 153	1 750	1850x1750	276	4 680
60 000	60 067	2 367	83 000	3 550	1 800	1900x1800	299	5 440

rotation max = 10 mrad
 déplacements long = +/- 50 mm
 déplacements trans = +/- 10 mm

Pot bearings device load cell for direct reading of pressing charges descents.



INJECTABLE Spherical Bearings



Installed 7500 tons injectable pot-bearings



Tulle Viaduct



Laminated Elastomeric Bearing Pads for Bridges

ETIC produce Elastomeric bearing with CE marking and with special anti fouling treatment. ETIC also produce Seismic, B and C type laminated bearing pads.

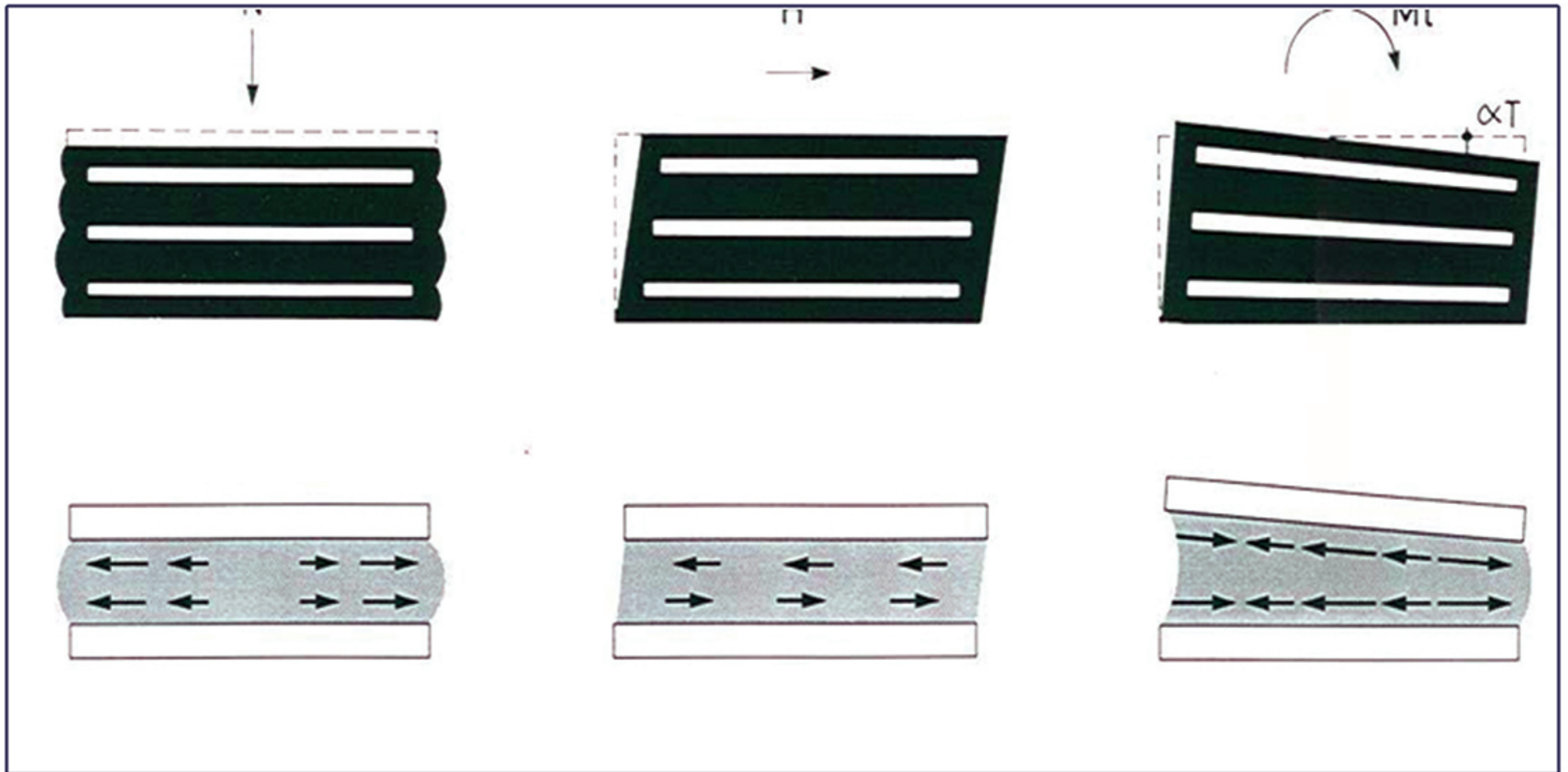


Saint André Viaduct – Bearings 1000 x 1000 x 228

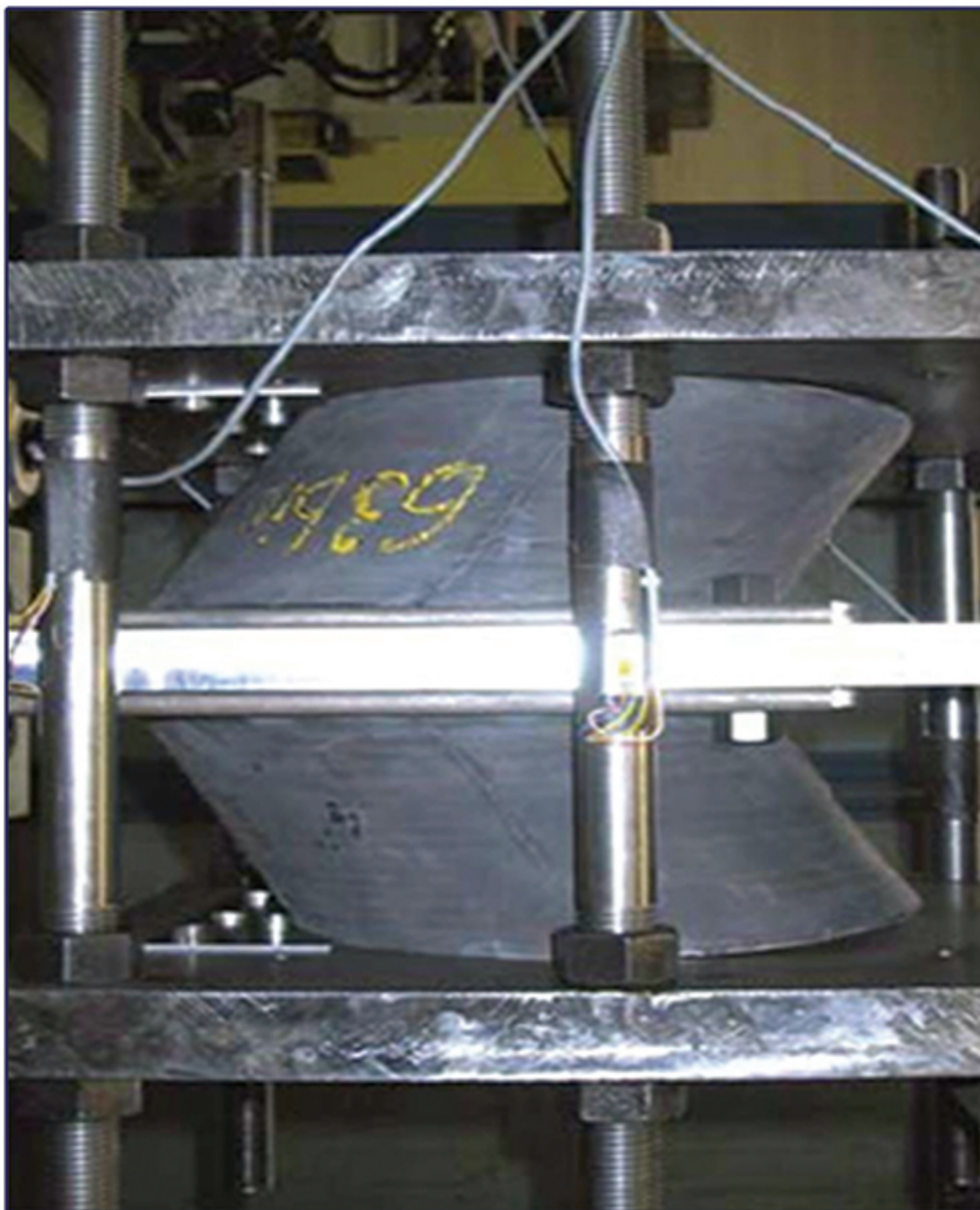


Preparation of steel plates and quality testing of Elastomer to comply Standards.

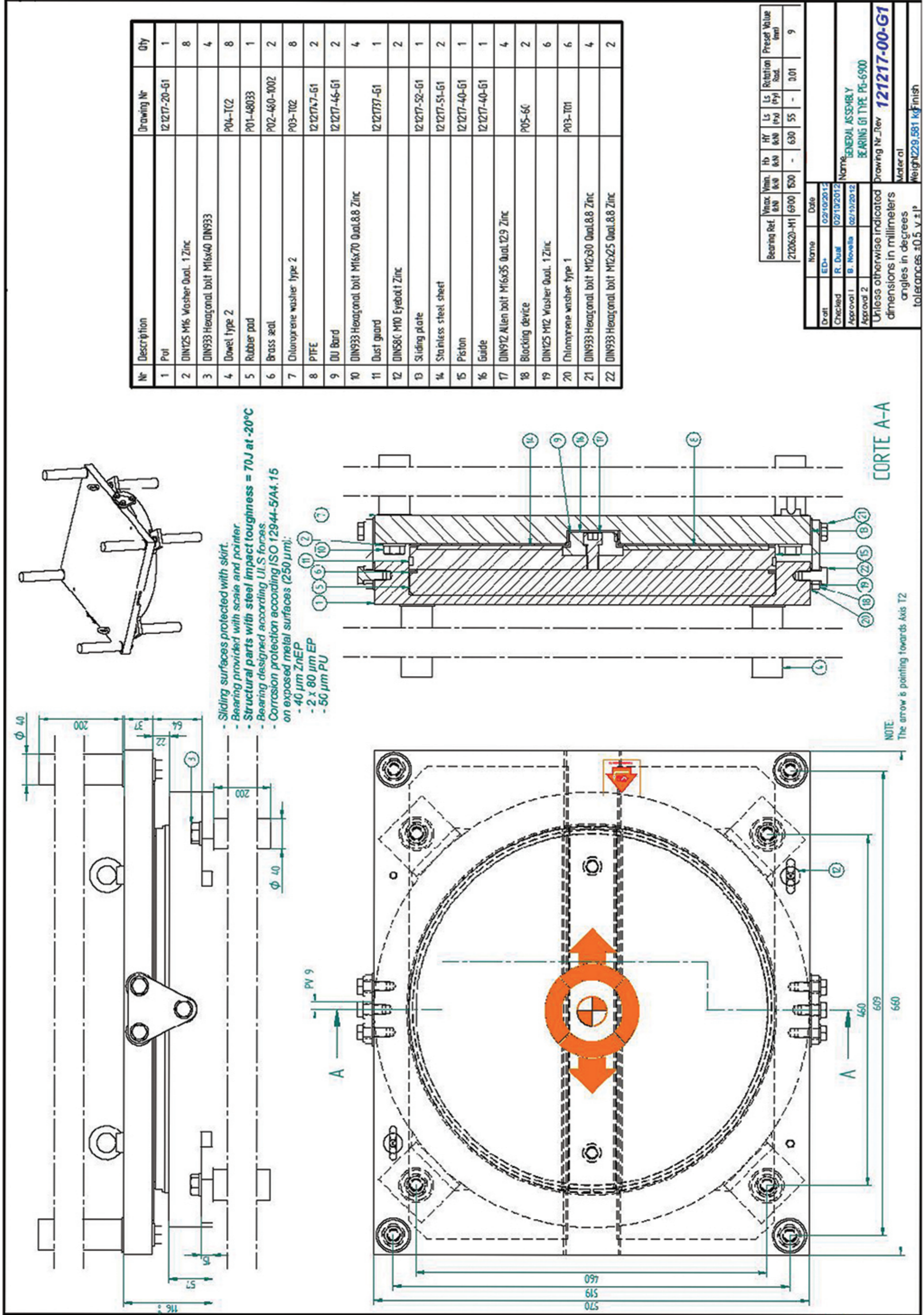
Sliding D and E Type Elastomeric Bearings with PTFE Plates



Directional Movement of Bearing pad according to different loads.



D and E type Sliding Elastomeric Bearing pads with PTFE Vulcanized plates.



- Sliding surfaces protected with skirt.
- Bearing provided with scale and pointer.
- Structural parts with steel impact toughness = 70J at -20°C.
- Bearing designed according ULS forces.
- Corrosion protection according ISO 12944-5/A4.15 on exposed metal surfaces (250 µm):
 - 40 µm ZnEP
 - 2 x 80 µm EP
 - 50 µm PU

Nr	Description	Drawing Nr	Qty
1	Pot	121217-20-G1	1
2	DIN125 M16 Washer Qual. 1 Zinc		8
3	DIN933 Hexagonal bolt M16x40 DIN933		4
4	Dowel type 2	P04-T02	8
5	Rubber pad	P01-48033	1
6	Brass seal	P02-460-1002	2
7	Chloroprene washer type 2	P03-T02	8
8	PTFE	121217-61	2
9	DU Board	121217-46-G1	2
10	DIN933 Hexagonal bolt M16x70 Qual.8.8 Zinc		4
11	Dust guard	121217-61	1
12	DIN581 M10 Eyebolt Zinc		2
13	Sliding plate	121217-52-G1	1
14	Stainless steel sheet	121217-51-G1	2
15	Piston	121217-40-G1	1
16	Guide	121217-40-G1	1
17	DIN912 Allen bolt M16x35 Qual.12.9 Zinc		4
18	Blocking device	P05-60	2
19	DIN125 M12 Washer Qual. 1 Zinc		6
20	Chloroprene washer type 1	P03-T01	6
21	DIN933 Hexagonal bolt M12x30 Qual.8.8 Zinc		4
22	DIN933 Hexagonal bolt M12x25 Qual.8.8 Zinc		2

Bearing Ref.	Vmax kN	Vmin kN	h kN	Hy kN	Ls (Hz)	Retention (Hz)	Presat Value (mm)
2120620-M1	6900	6900	-	630	55	-	0.01

Name	Date
ED+	02/10/2012

Checked	R. Dual	Date
B. Nowels		02/10/2012

Approval 2	Name	GENERAL ASSEMBLY
		BEARING G1 TYPE PG-6900

Drawing Nr.	Rev	Material	Weight
121217-00-G1			229,581 kg/Finish

Unless otherwise indicated dimensions in millimeters angles in degrees tolerances ±0.5 v ±1

NOTE: The arrow is pointing towards axis T2

ETIC France completed projects in Pakistan

No.	Type	Project Name	Year	Client Name	Consultant Name	Contractors
1	EJX-80	Supply of Expansion joints at Rawalpindi-Islamabad Metro Bus Project Package II Rawalpindi & Package I Islamabad.	2014	RDA	NES PAK	NLC & Habib Construction
2	Bearing Pad	Supply of Bearing Pads at Metro Bus Service Multan. Package I-B & IV-B	2016	MDA	Osmani Consultant	QBA-Maqbool Calson JV
3	SBJ-5	Rehabilitation of Lahore-Islamabad Motorway M-2 Replacement of Expansion joints.	2016	FWO	Zeerak / BNA	TPT Pakistan
4	EJX-80	Supply of Expansion joints at Construction of Flyover on G.T Road at Aziz Crossing Gujranwala.	2016	NHA	NES PAK	NLC
5	EJ-50s	Supply of Expansion joints at Karal chowk Intersection at Islamabad Expressway Islamabad	2016	CDA	Zeerak / Loya	ZKB
6	EJ-65	Supply of Expansion joints at Construction of Flyover across Railway Track in Raiwind City	2016	C&W	NES PAK	IKAN Engineering
7	SBJ-5	Installation of New Expansion Joints SBJ5 at M-9 Karachi - Hyderabad motorway on bridge # 8, 10 and 11.	2017	NHA	NES PAK	FWO



 25-B, XX, Khayaban-e-Iqbal Phase III, D.H.A Lahore
 +92 42 37309569  +92 42 37186357



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info@texplustrading.com
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texplustrading