General catalogue
Elastomeric bearings

JEMA®

CAUCHOS JEMA, S.A.



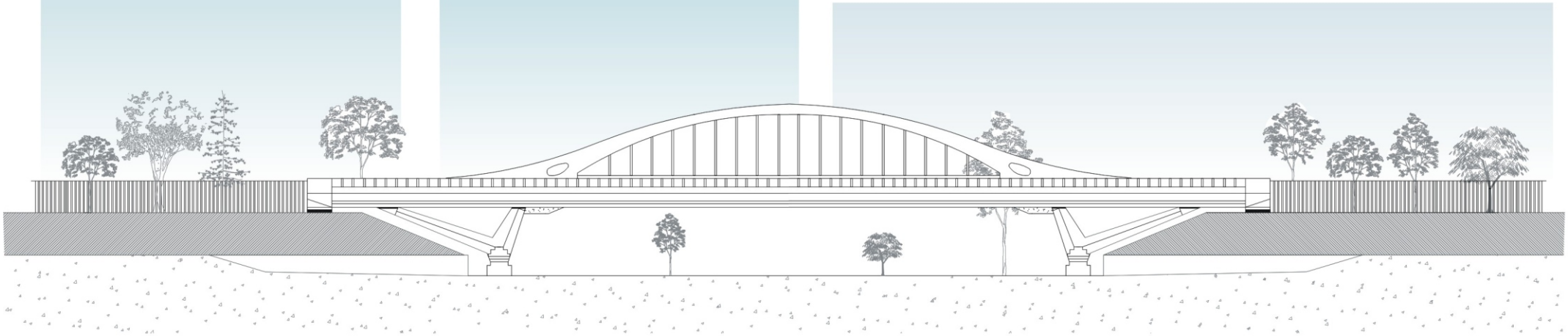


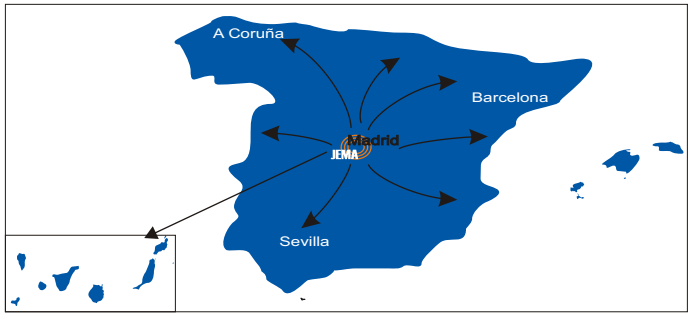
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JEMA®

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Introduction



Since our foundation in 1967, we have been a company dedicated to the manufacture of pieces of rubber and metal-rubber through vulcanization by compression and injection geared to auto-motion, public and civil works and industry in general.

We use a high quality management system certified in accord with norm ISO-9001: 2008 accredited by BVQI on June 11 2001.
In 2009 we obtained the certificate of conformity CE which guarantees compliance with the specifications described in Annex ZA of Norm EN 1337-2:2005. Both certificates are in full vigor through annual audits carried out by the accrediting agencies.





In the following we supply information about the elastomeric supports we manufacture, the features of the materials we use and other data that we hope will be useful.





Definitions and requirements

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RECTANGULAR SUPPORT



CIRCULAR SUPPORT

The elastomere is a macromolecular material that returns almost completely to its original dimensions and form after undergoing considerable deformation due to a weak impact and after that impact ends.
Elastomeric supports are elements used to allow, in specific situations, the rotation between two elements of a structure and to transmit the pressures specified in applicable specifications, to avoid movement (fixed supports), allow movement only in one direction (guided supports) or in all directions of a surface (free supports).

Elastomeric supports must be designed and manufactured in order to accommodate movements of translation in whatever direction and movements of rotation around whichever axis due to elastic deformation, in order to correctly transmit, from one structural component to another, the forces of design and to accommodate the designed movements derived from the structural analysis.
In order to amplify their field of application, they can be combined with instruments of supplementary support, such as a system of temporal or permanent sliding or a system of restriction in whatever direction.
Even though elastomeric supports are designed to accommodate movements of wire cutters, these should not be used to provide permanent resistance to a force of external cutters continuously applied.

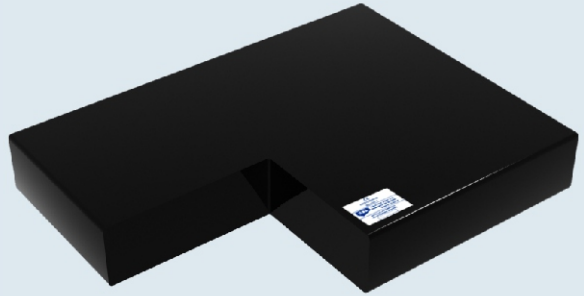
Elastomeric supports must function correctly for a life-time of work reasonably and economically designed when they are subjected to normal conditions of environment and maintenance. In exceptional conditions of environment or applications additional measures of caution must be taken.

*Specifications described in Norm EN 1337:2005.

Types of elastomeric bearings

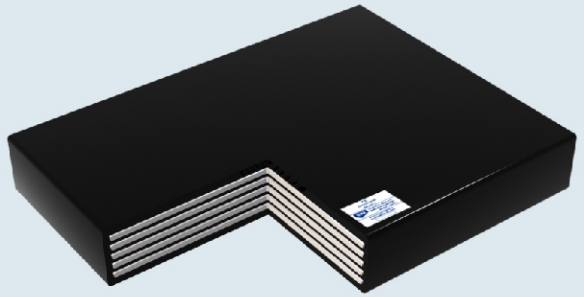
1. NOT REINFORCED TYPE PJ-A

They consist exclusively of vulcanized elastomere without internal cavities (separating spaces).



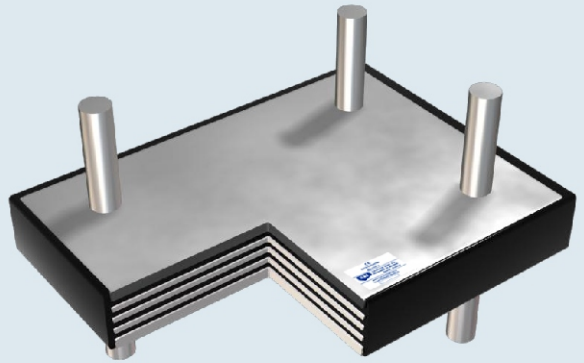
2. REINFORCED TYPE PJ-B

They are built with a block of elastomere vulcanized and internally reinforced with one or more sheets of steel chemically connected during the process of vulcanization.
The minimum thickness of the sheets is 2 mm.



3. ANCHORED TYPE PJ-C

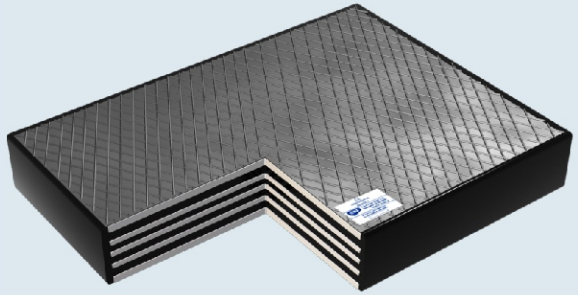
In addition to being built with alternating sheets of rubber and steel, they feature in the external surface two steel plates to which are fixed some bolts that are attached to both the board and the substructure.



Types of elastomeric bearings

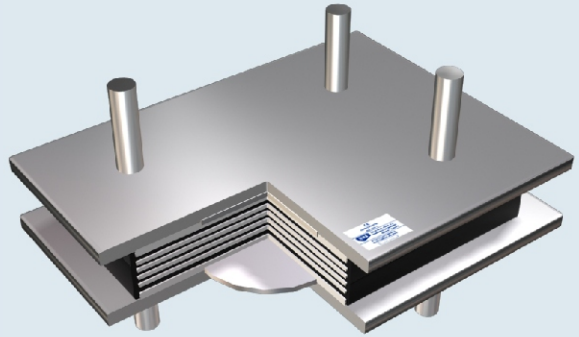
4. GRILLED SUPPORTS TYPE PJ-E

They are a variant of the anchored supports, but in contrast to the anchored ones, they do not contain attachment bolts and the steel plates are replaced by plates with reliefs (grooved or with drop-like)



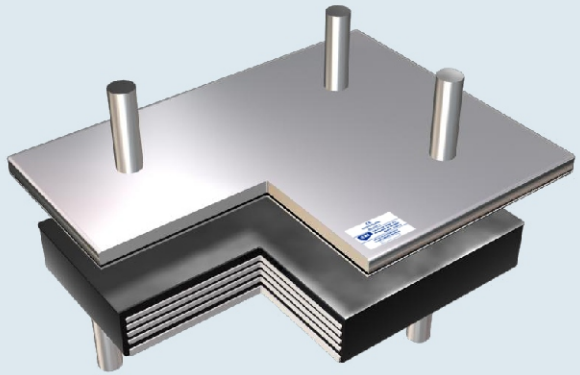
5. DETACHABLE TYPE PJ-F

These are anchored supports that have been designed by anticipating their replacement if necessary. For that purpose they feature some discs fitted in the cover plate of the support.



6. SLIDING TYPE PJ-G

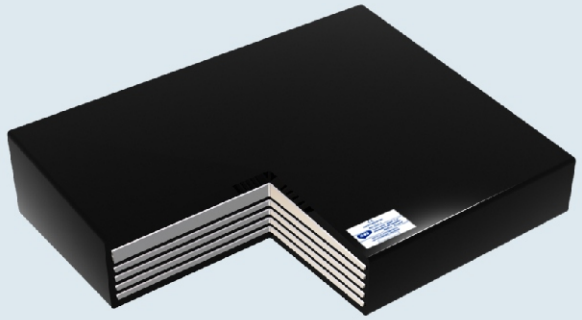
Support laminated with a PTFE plate in the upper surface, directly vulcanized in the external surface of the elastomere or fitted to a steel plate. In both cases, the support will slide over a plate of stainless steel (sliding plate).



Special applications

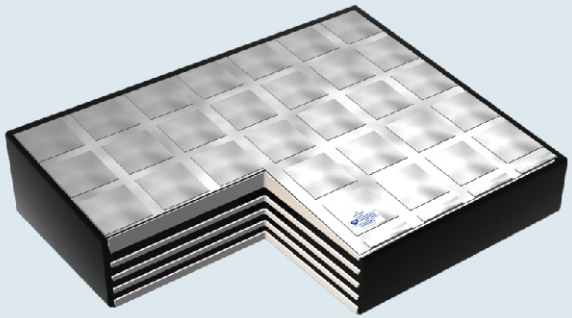
7. WITH INCLINATION

In order to adapt the support to surfaces that are not parallel to each other (boards with longitudinal inclination or oblique elevated bands) a metallic wedge is substituted for the upper plate. This is applicable in inclinations inferior to 3%. During the installation of this type of supports, care must be taken so that the metallic wedge be placed in the upper part of the support.

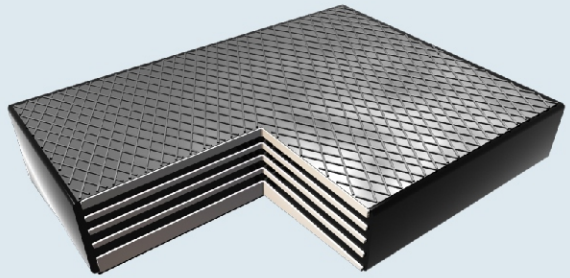


8. WITH GRILLED INCLINATION

When the above mentioned inclinations (see no. 7) exceed 3%, the metallic wedge and the lower steel plate will have reliefs in order to prevent the sliding of the support.



UPPER VIEW OF SUPPORT



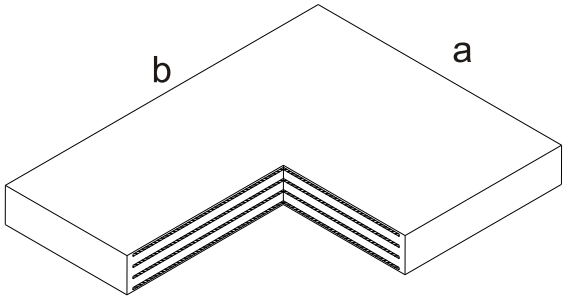
LOWER VIEW OF SUPPORT

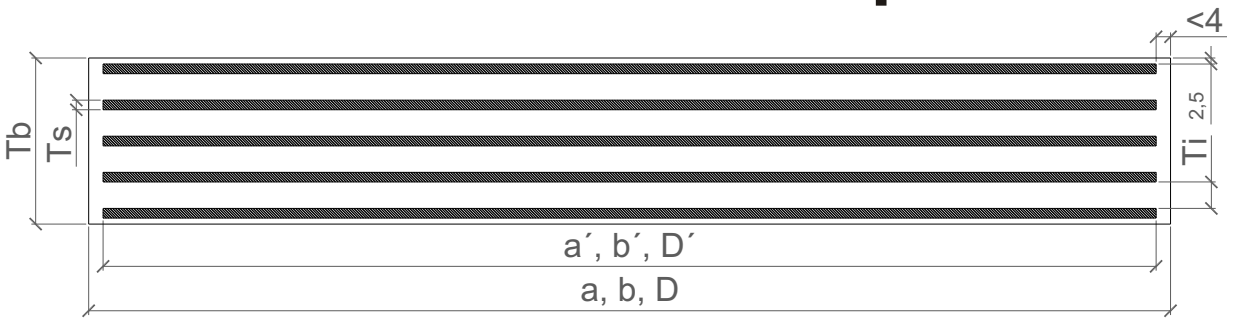
Denomination of the instruments of support

The most common way of denominating the reinforced instruments of support is the following:

$$a \times b \times n \, (T_s + T_i)$$

- * **a** Total width of the support (the smallest dimension of the rectangular support)
- **b** Total length of a support (largest dimension of a rectangular support)
- **n** Number of layers of the elastomere
- T_i Thickness of a layer of individual elastomere in a laminated support
- T_s Is the measure in mm of the steel plates
- **a´** Actual width of the laminated support (width of the reinforcing steel plates)
- **b´** Actual length of the laminated support (length of the reinforcing steel plates)
- **t** Thickness of the flat support without bubbles or pulling
- T_p Thickness of the PTFE plate
- T_e Total nominal thickness of the elastomere
- T_b Total nominal thickness of the support
- T_o Total initial thickness of the support in the middle without regard to its upper and lower covers.



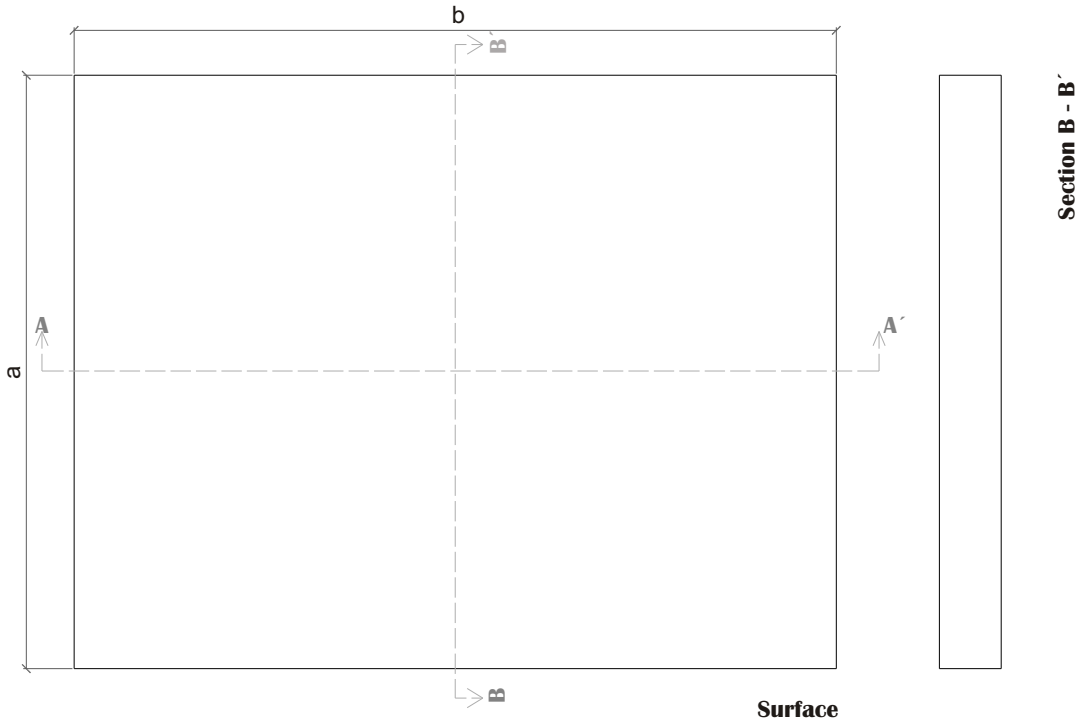


* In general this is the side that is placed parallel to the board.

Not reinforced supports Type PJ-A

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a	Smaller side of the support
b	Larger side of the support
t	Total thickness

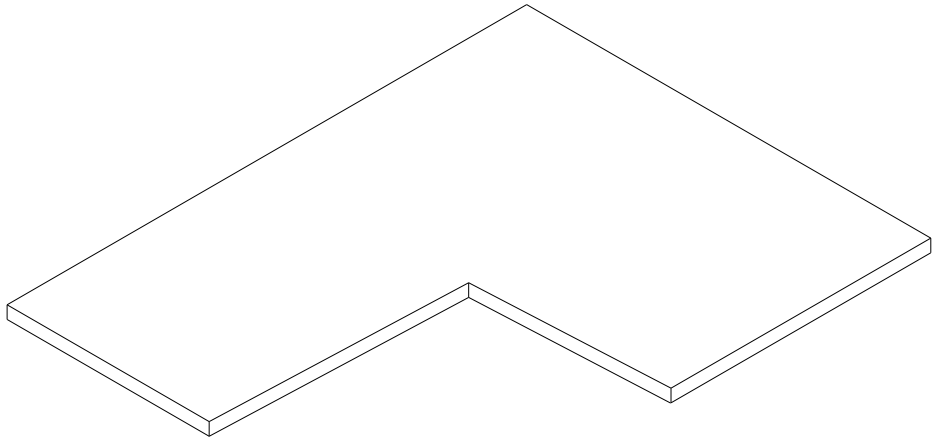


Surface

Section B - B´



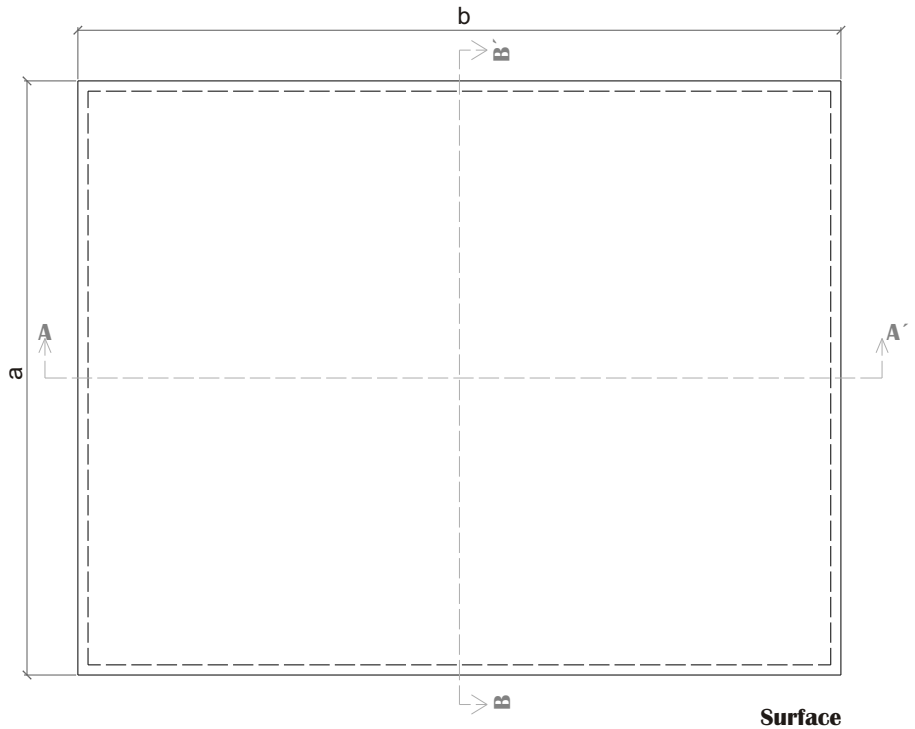
Section A - A´



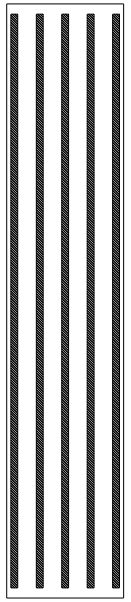
View of different layers

Reinforced supports Type PJ-B

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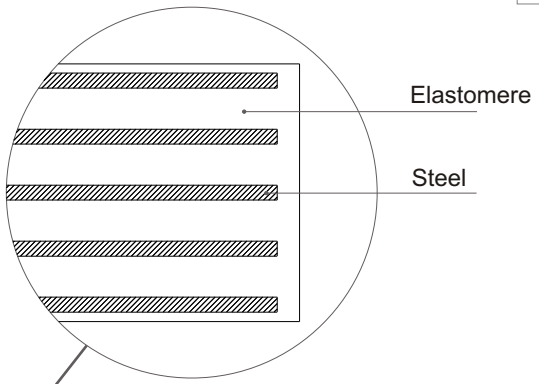


Surface



Section B - B´

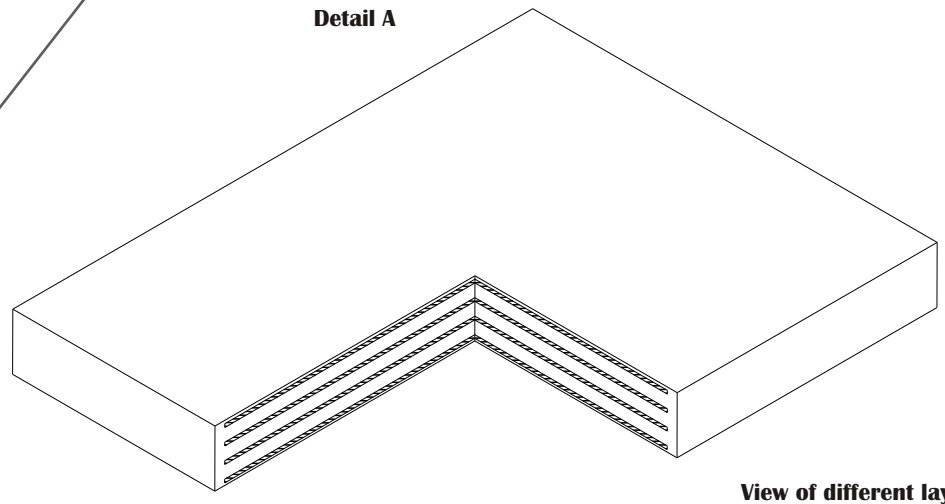
a	Smaller side of the support
b	Larger side of the support
T_b	Total thickness
T_i	Thickness of the layers of elastomere
T_s	Thickness of the steel plates



Detail A



Section A - A´

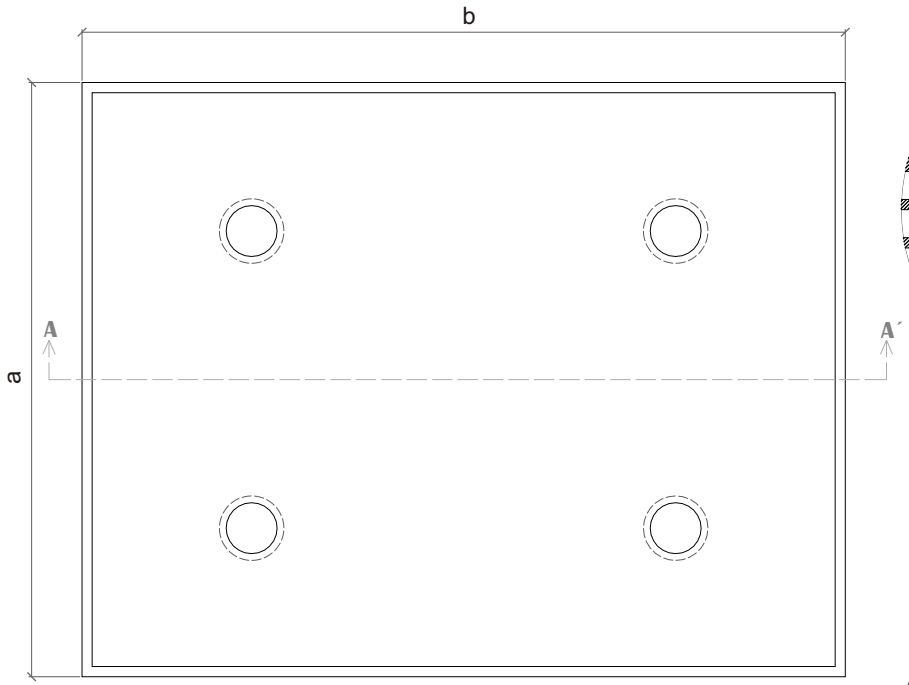


View of different layers

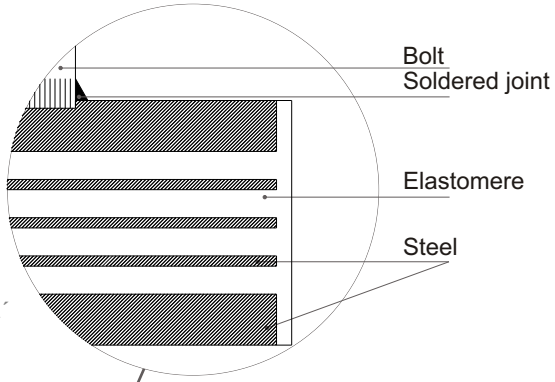
Anchored supports Type PJ-C

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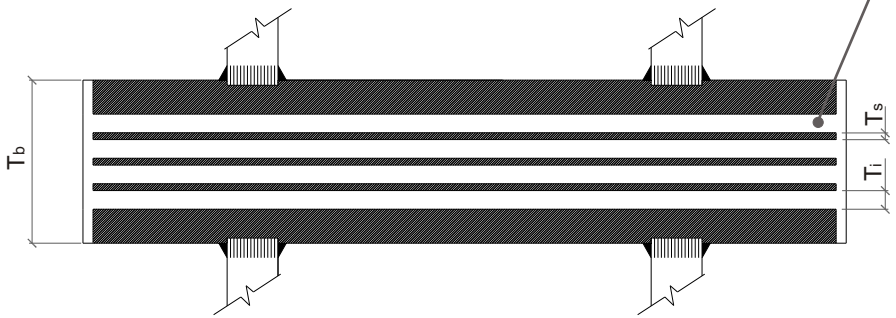
a	Smaller side of the support
b	Larger side of the support
T_b	Total thickness
T_i	Thickness of the layers of elastomere
T_s	Thickness of the steel plates



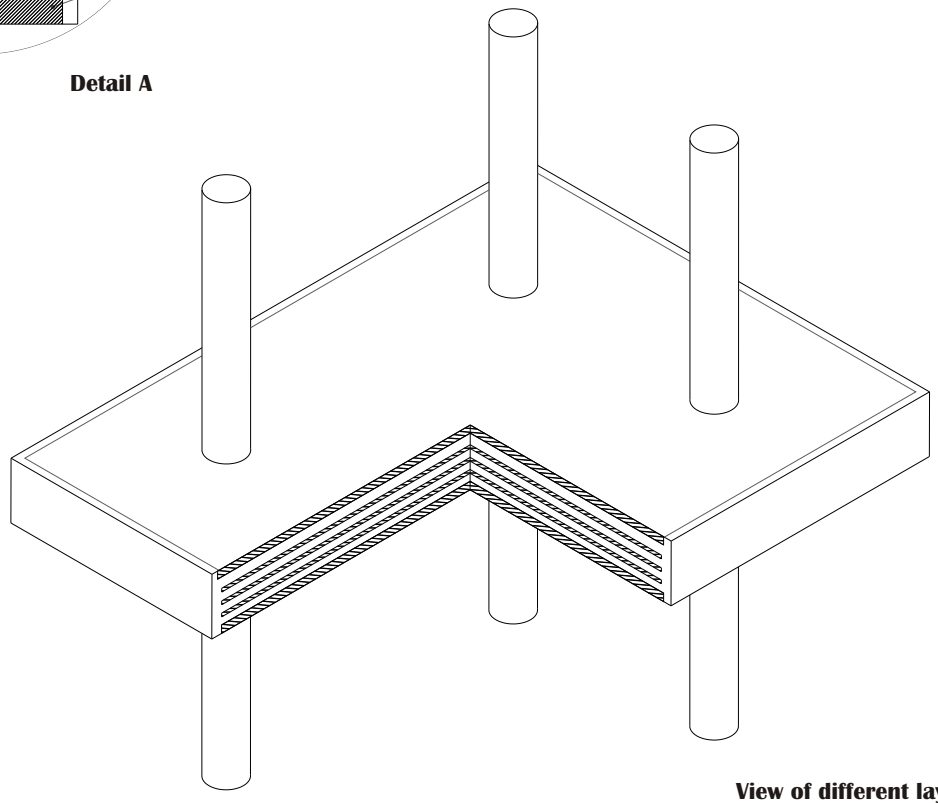
Surface



Detail A



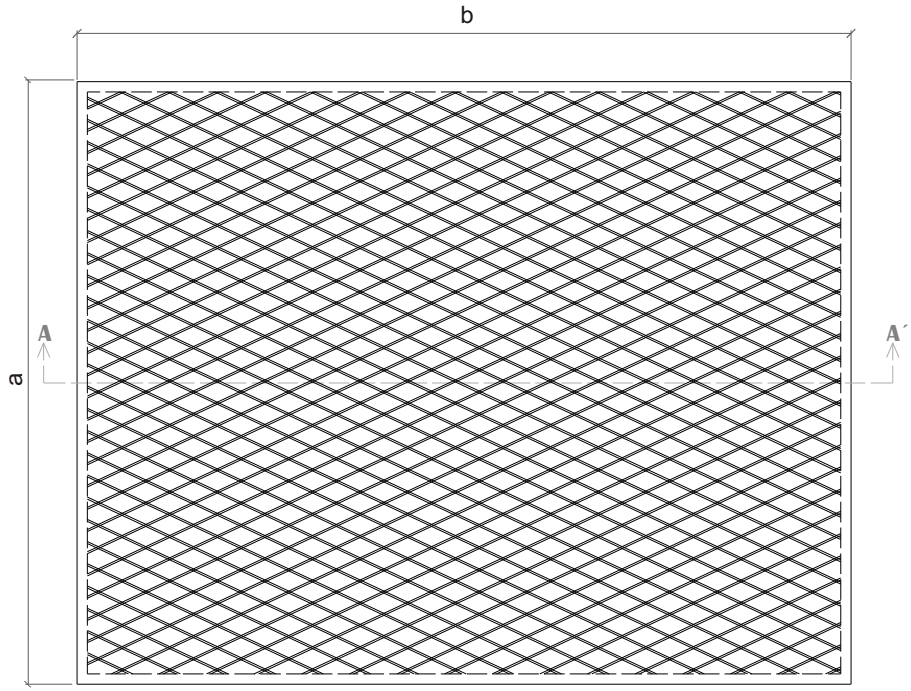
Section A - A´



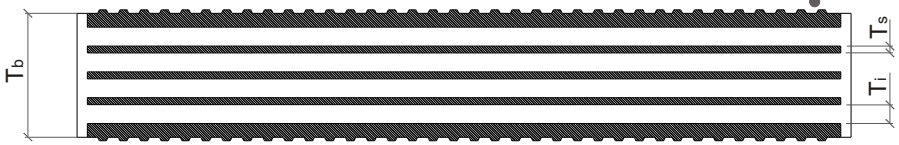
View of different layers

Grilled supports Type PJ-E

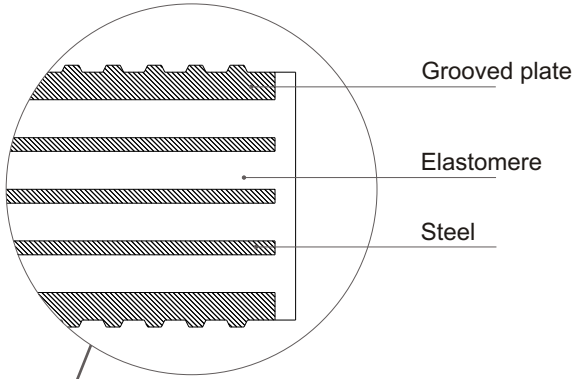
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Surface

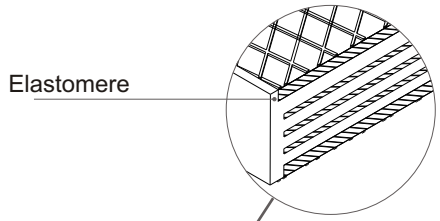


Section A - A´

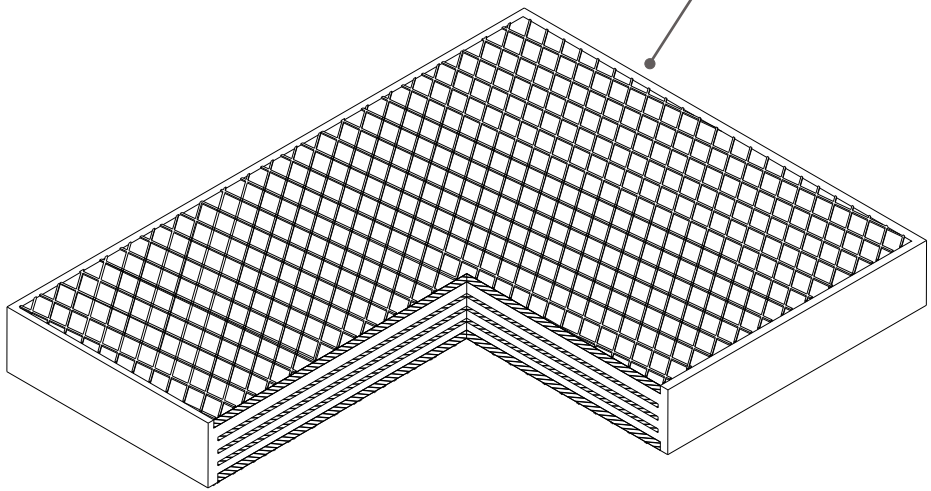


Detail A

a	Smaller side of the support
b	Larger side of the support
T_b	Total thickness
T_i	Thickness of the layers of elastomere
T_s	Thickness of the steel plates



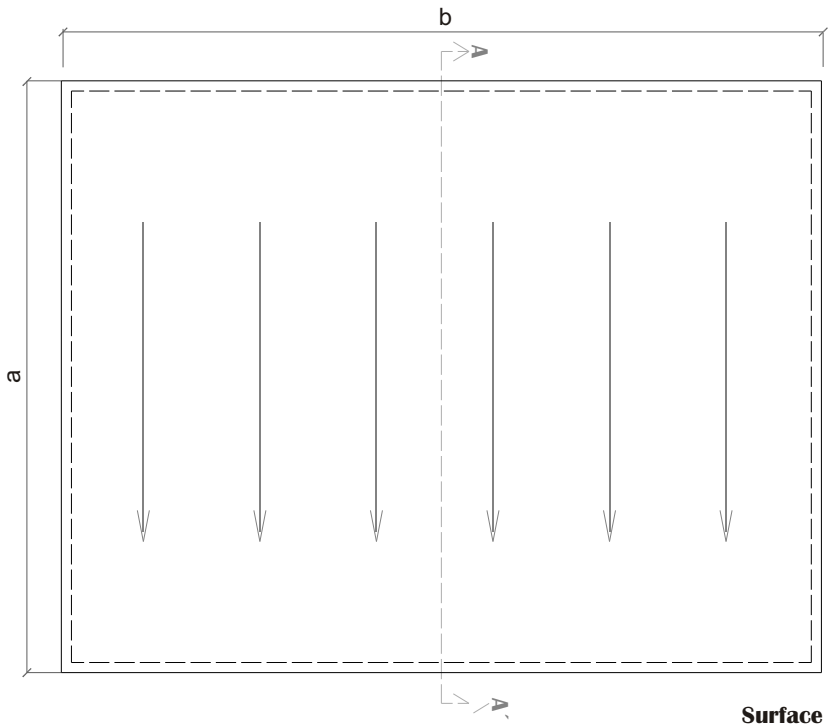
Detail B



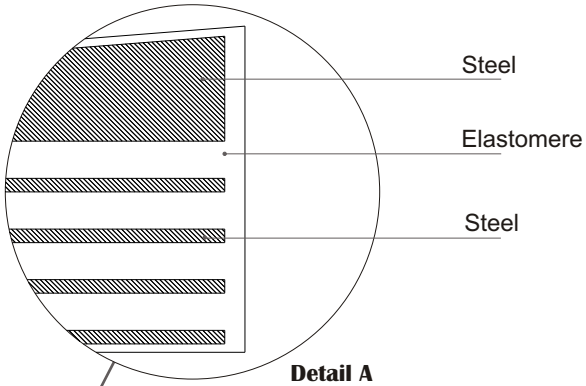
View of different layers

Reinforced support with inclination

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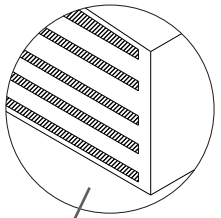


Surface

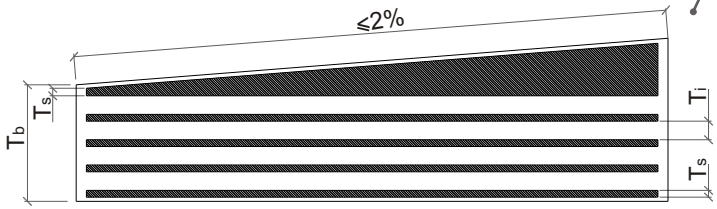


Detail A

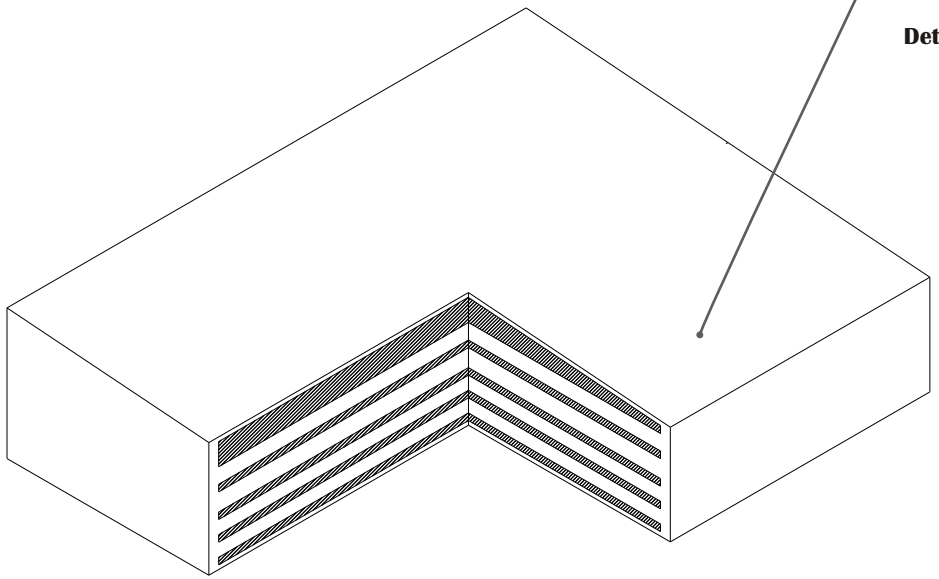
a	Smaller side of the support
b	Larger side of the support
T_b	Total thickness
T_i	Thickness of the layers of elastomere
T_s	Thickness of the steel plates



Detail B



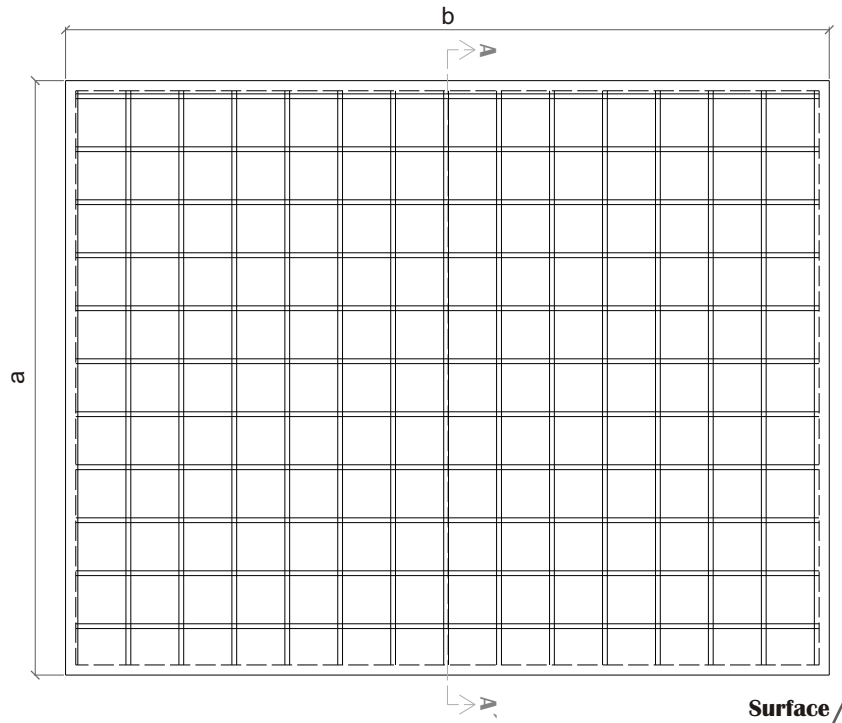
Section A - A´



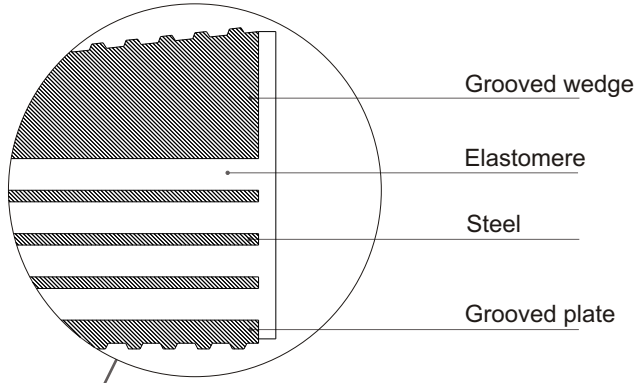
View of different layers

Reinforced support with grilled inclination

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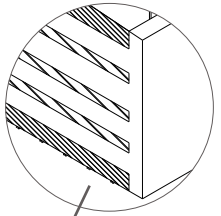


Surface

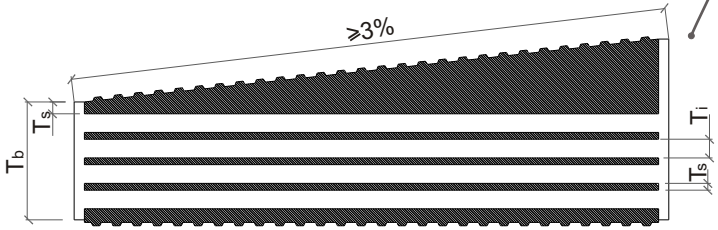


Detail A

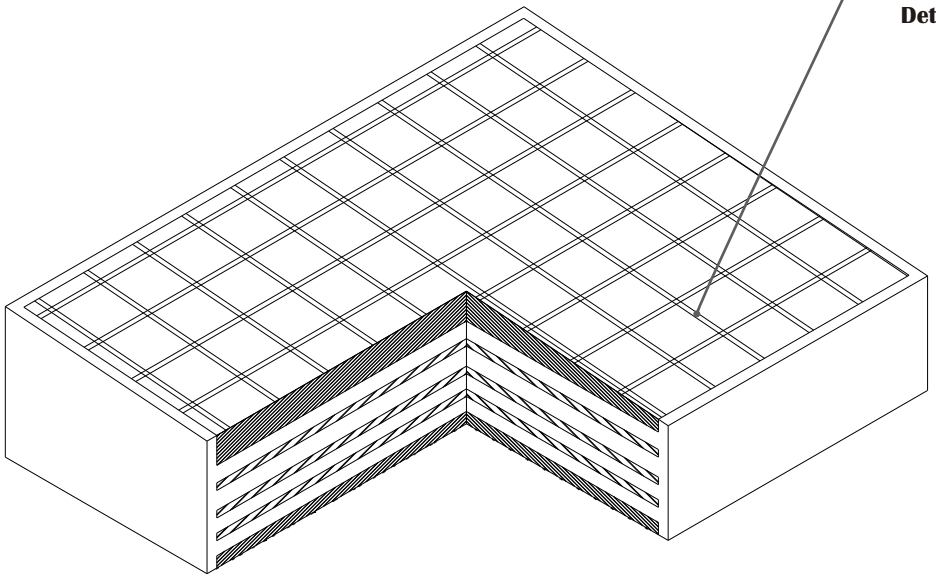
a	Smaller side of the support
b	Larger side of the support
T_b	Total thickness
T_i	Thickness of the layers of elastomere
T_s	Thickness of the steel plates



Detail B



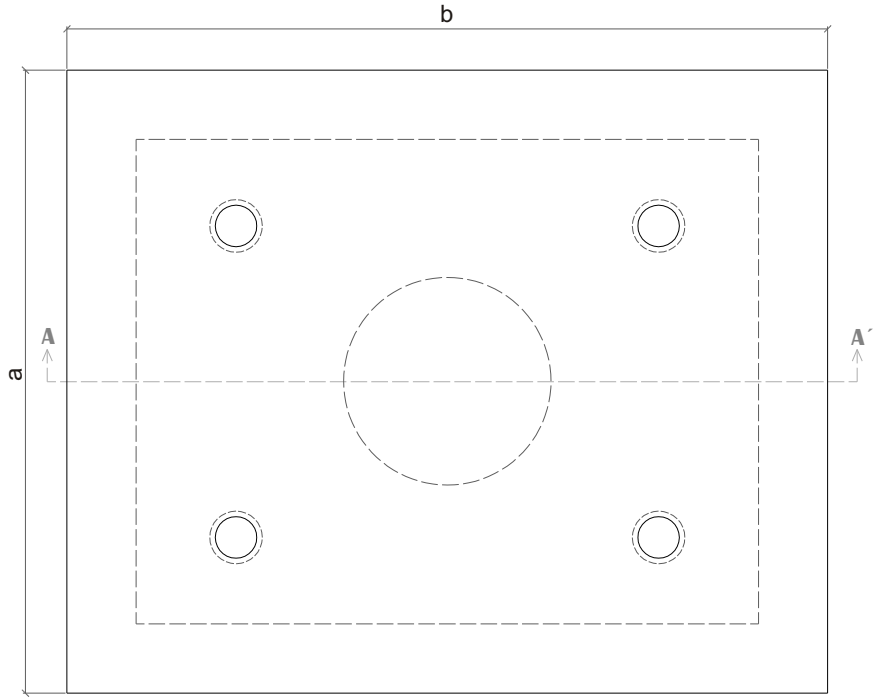
Section A - A´



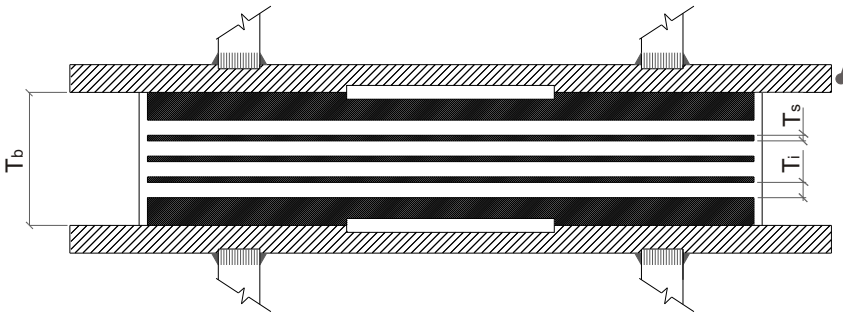
View of different layers

Detachable supports Type PJ-F

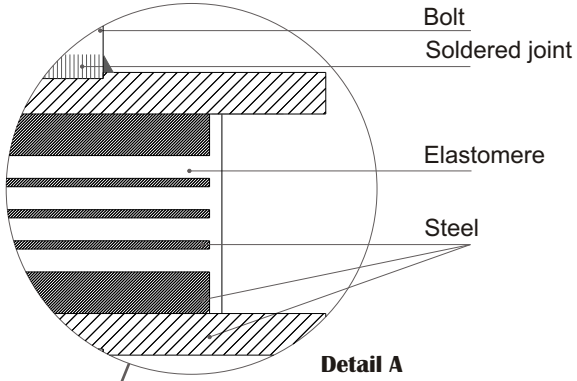
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Surface

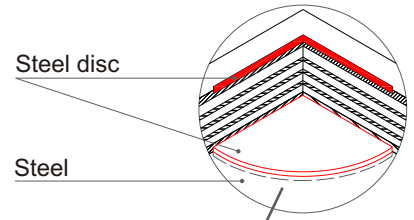


Section A - A´

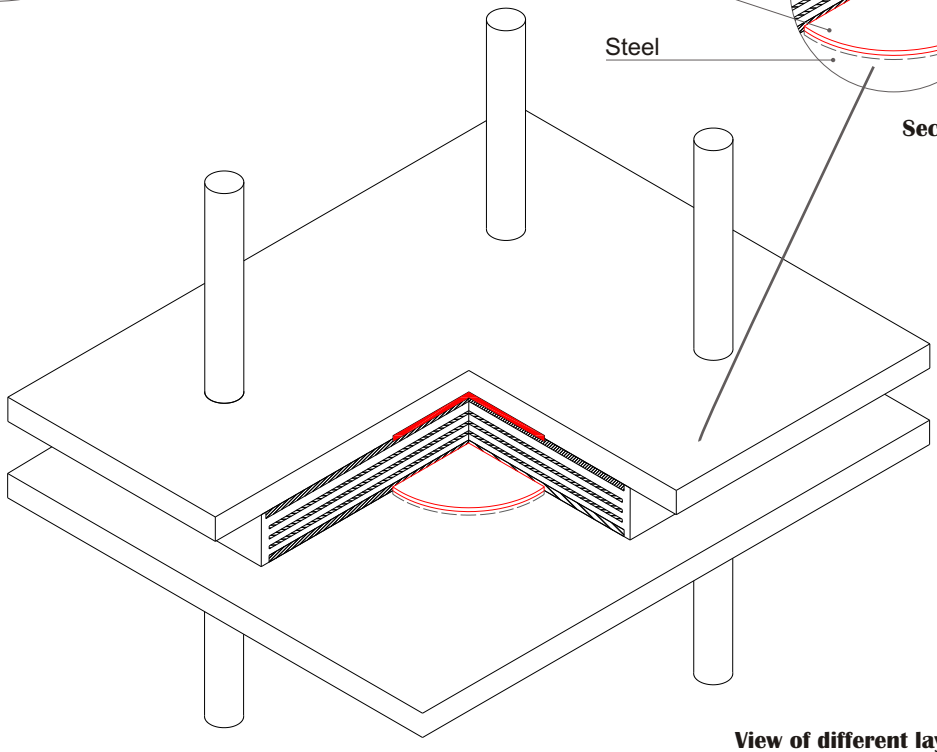


Detail A

a	Smaller side of the support
b	Larger side of the support
T_b	Total thickness
T_i	Thickness of the layers of elastomere
T_s	Thickness of the steel plates

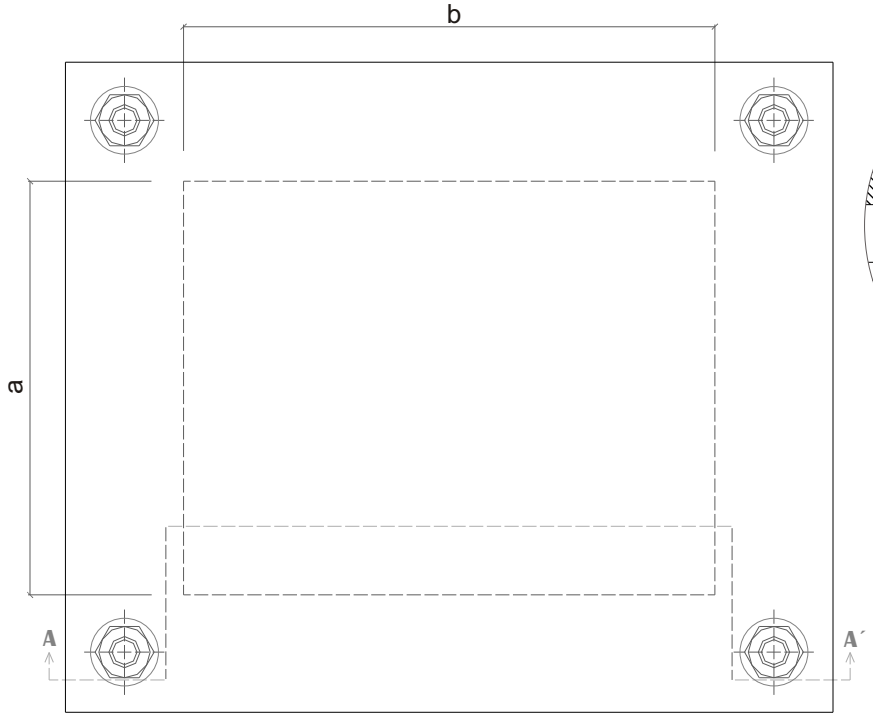


Section B

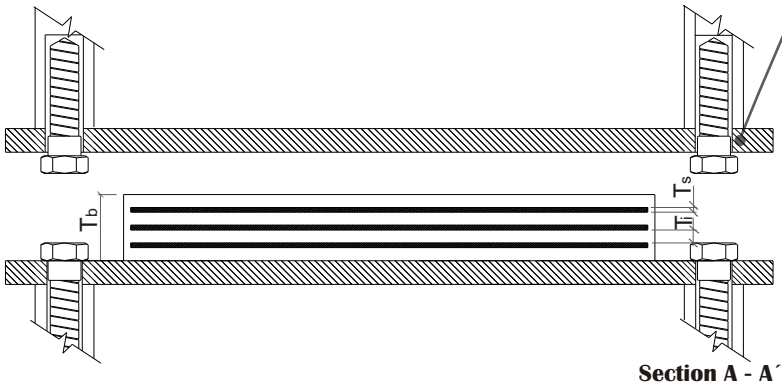


View of different layers

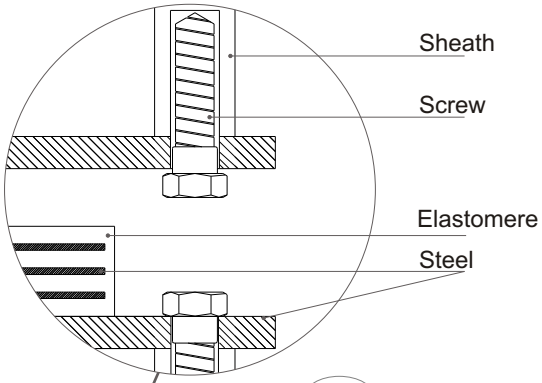
Supports Type PJ-F1



Surface



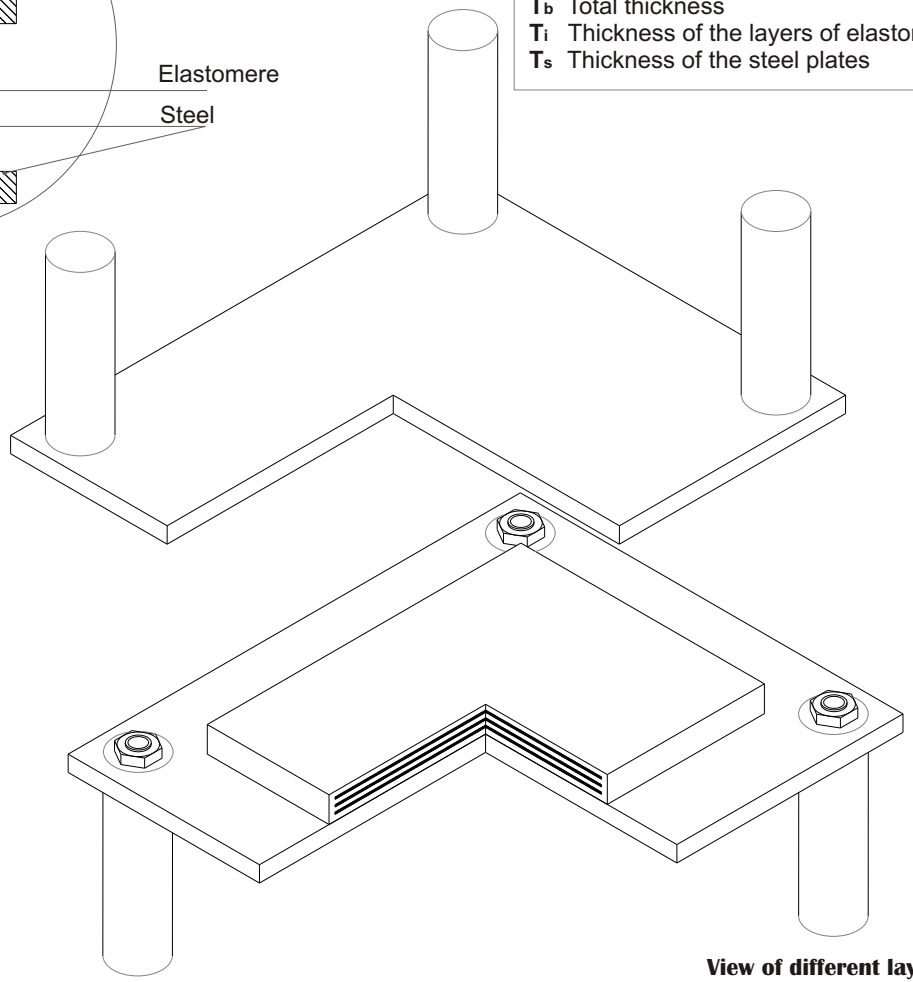
Section A - A´



Detail A

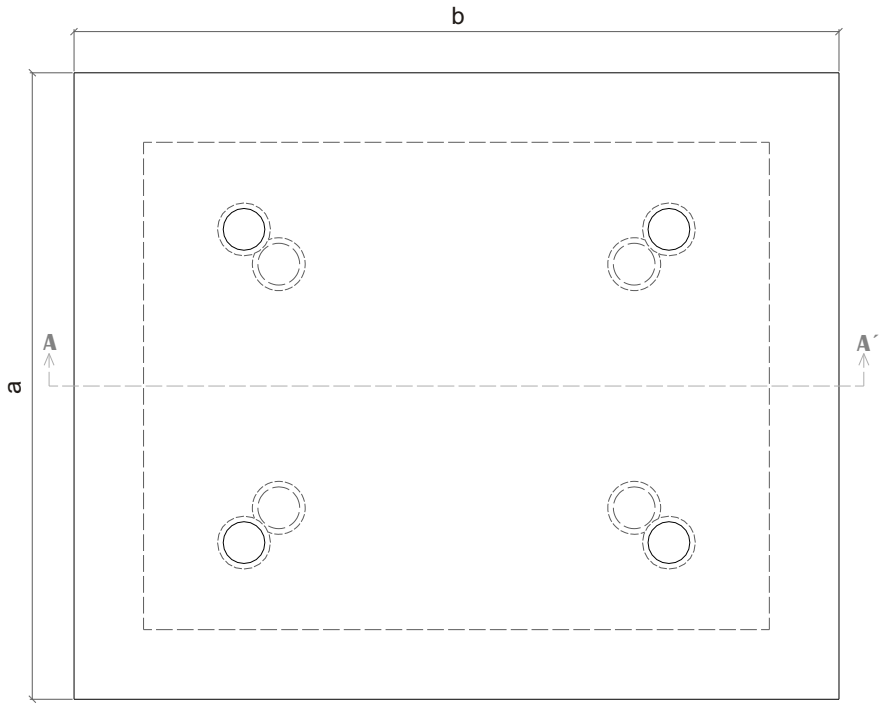
CAUCHOS JEMA, S.A.

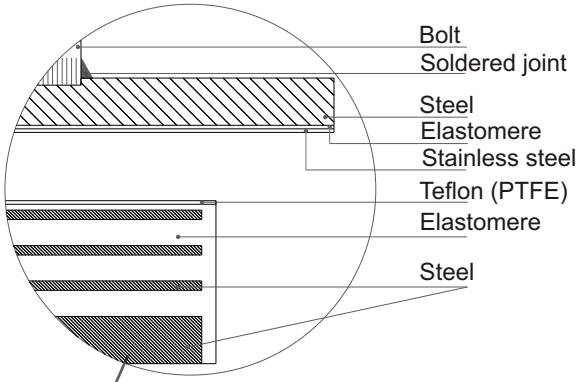
a	Smaller side of the support
b	Larger side of the support
T_b	Total thickness
T_i	Thickness of the layers of elastomere
T_s	Thickness of the steel plates



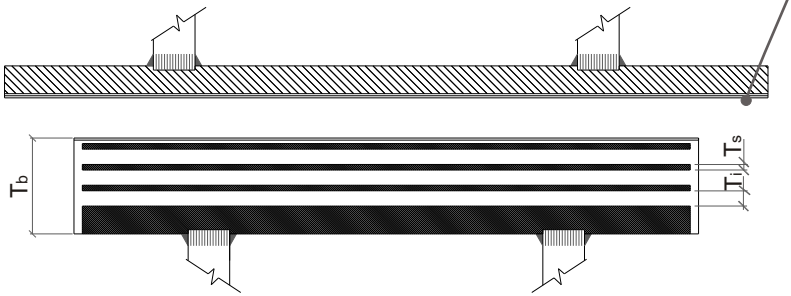
View of different layers

Sliding supports Type PJ-G





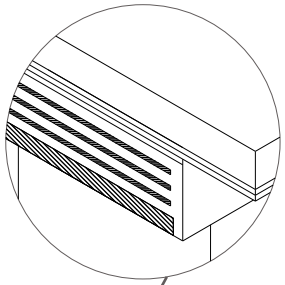
Detail A



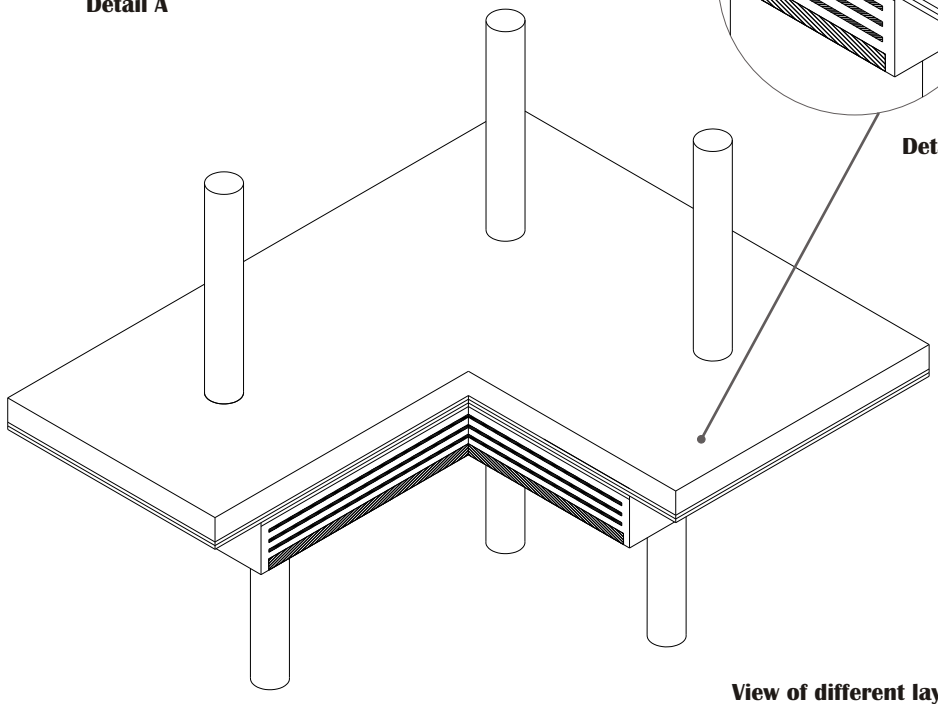
Section A - A´

CAUCHOS JEMA, S.A.

a	Smaller side of the support
b	Larger side of the support
T_b	Total thickness
T_i	Thickness of the layers of elastomere
T_s	Thickness of the steel plates



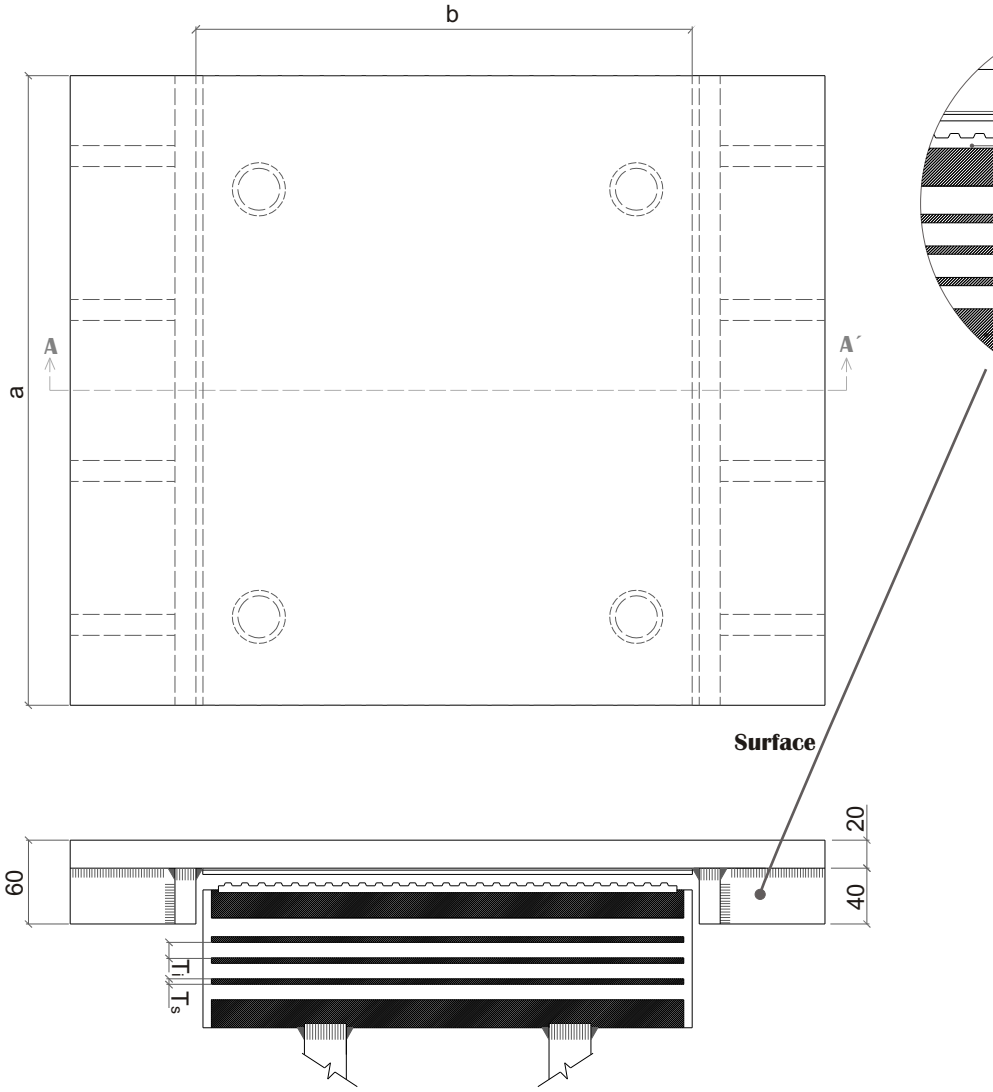
Detail B



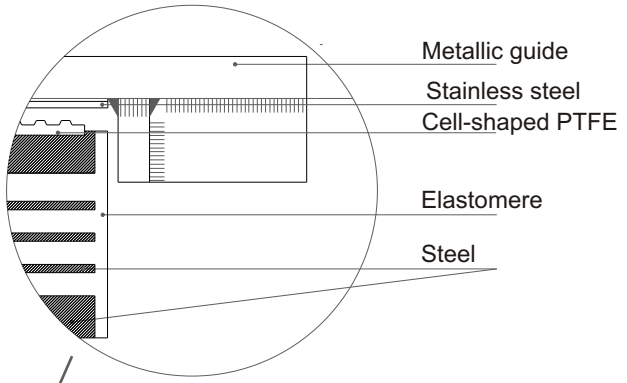
View of different layers

Guided sliding support

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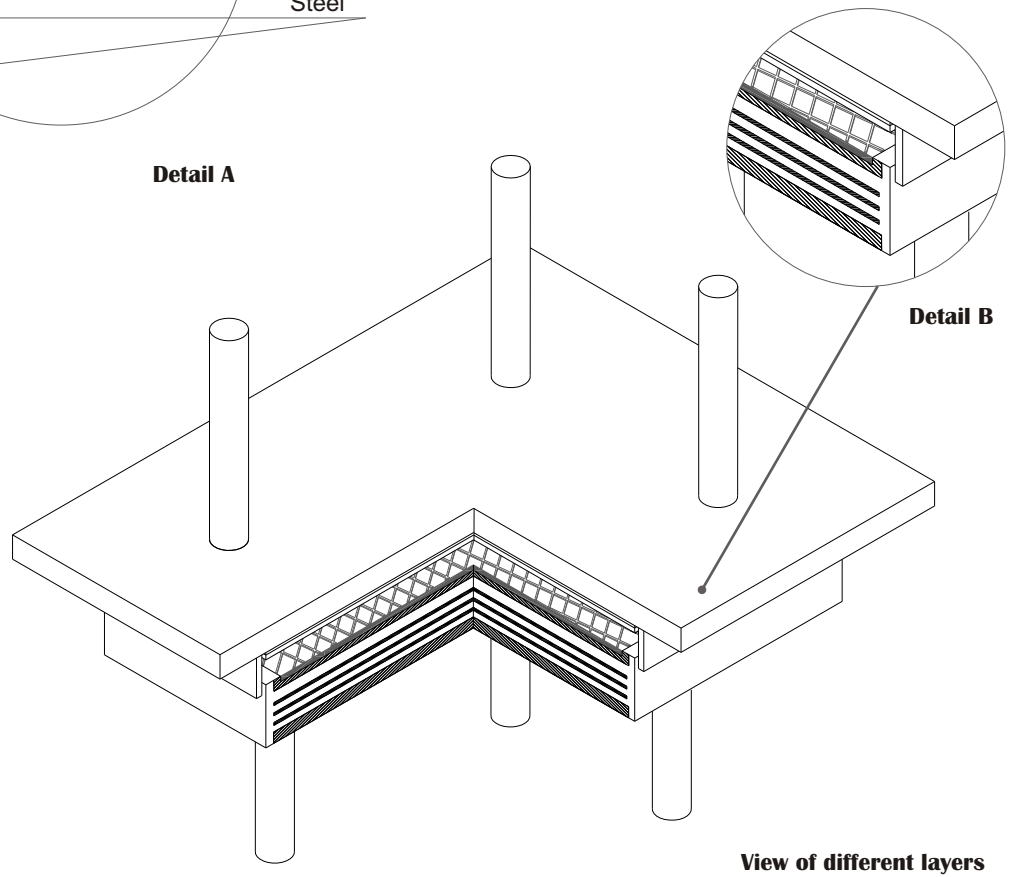


Section A - A´



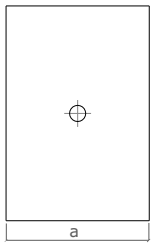
Detail A

a	Smaller side of the support
b	Larger side of the support
T_b	Total thickness
T_i	Thickness of the layers of elastomere
T_s	Thickness of the steel plates

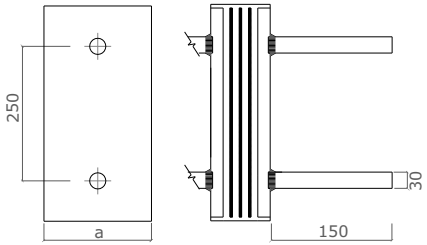


View of different layers

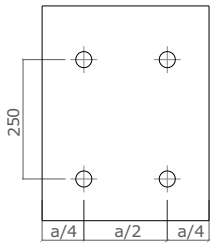
Position of the bolts



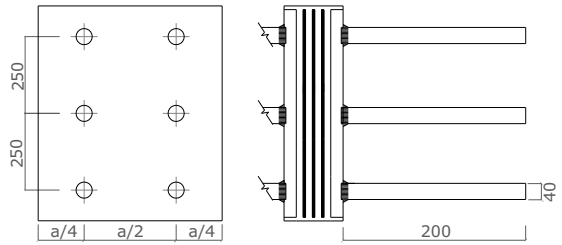
100 x 150
150 x 200
200 x 250
200 x 300



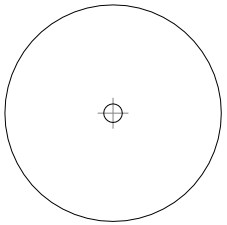
200 x 400
250 x 400
300 x 450



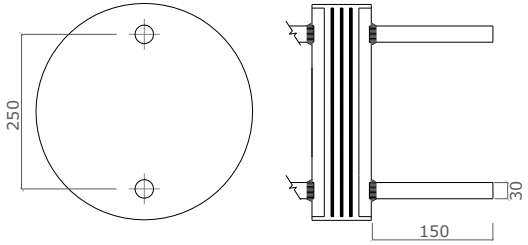
350 x 450
450 x 600
400 x 500
500 x 600



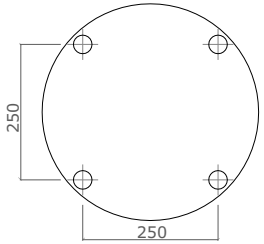
600 x 700
700 x 800
800 x 800
900 x 900



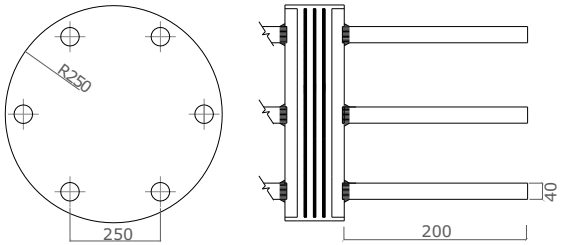
Ø 200 Ø 300
Ø 250



Ø 350



Ø 400 Ø 500
Ø 450 Ø 550



Ø 600 Ø 800
Ø 650 Ø 850
Ø 700 Ø 900
Ø 750

For supports in surfaces < 1.200 cm2 the recommended length of the bolts is 150 mm.
For supports in surfaces > 1.200 cm the recommended length of the bolts is 200 mm.
For supports whose surface is < 3.500 cm the recommended diameter of the bolts is 30 mm.
For supports who surface is >3.500 cm the recommended diameter of the bolts is 40 mm.

Technical data

(According to Norm 1337-3:2005)

The elastomere we use in the manufacturing of supports follows the specifications of Table 1“Physical and mechanical properties of the elastomere”of norm 1337-3:2005, which specifies the properties they must feature.
Following the specifications of said norm, the external and internal plates of reinforcement are made of class S 235 steel in accordance with norm EN 10025.

FEATURES OF THE ELASTMERE	UNIT	REQUERIMENTS
Hardness	Shore A	60 / 65
Resistance to traction, molded cylinder	Mpa	16
Resistance to traction, cylinder of the support	Mpa	14
Minimum lengthening at rupture, molded cylinder	%	425
Minimum lengthening at rupture, cylinder of the support	%	375
Minimal resistance to tearing	KN/m	10
Properties of compression at high temperature (24 h, 70° C)	%	15
Accelerated aging	72 h, 100 °C	
Hardness (Shore A)		± 5
Resistance to traction (%)		± 15
Lengthening at rupture (%)		± 25
Resistance to ozone	96 h a 40°C concentration 100 ppcm and 30 % lengthening	No cracks
FEATURES OF THE STEEL		
Elastic limit, minimum	N/mm²	235
Tension at rupture	N/mm²	360-510
Lengthening	%	26
MECHANICAL FEATURES		
Module of shears (Module G)	Mpa	0,9 ± 0,15

Recommendations for calculation and installation

BASIC CONSIDERATIONS FOR THE CALCULATION OF THE REINFORCED SUPPORTS

For the calculation of the reinforced supports the following guiding considerations are recommended:

-The maximum load of compression must not exceed 100-150 Kg per square cm, taking into account the dimensions of the support.

-The maximum deformation of the support due to vertical loads must not exceed the 15% of the initial thickness of the support.

-In permanent deformations, the horizontal displacement should never be higher than 70% of the total thickness of the rubber.

-In order to insure the stability of the support, the total height of the rubber should not be higher than 25% of the dimension of the smaller side of the support or of the diameter.

-The minimal pressure of the load over a support, in order to avoid displacement along the structure, must be 30 Kg/cm^2. If this condition is not fulfilled, the installation of Type C supports (anchored) is recommended.

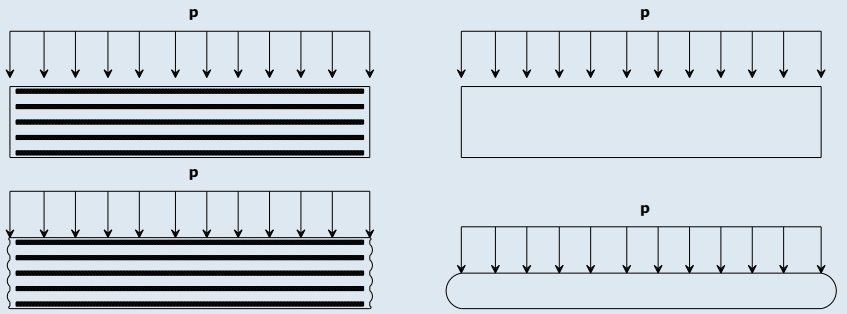
RECOMMENDATIONS FOR THE INSTALLATION OF THE REINFORCED SUPORTS

In general terms, during the installation of the reinforced supports the following instructions must be followed:

-In order to obtain the correct working of the support instruments it is necessary that the upper side of the basis (or pier) and lower side of the board be flat and horizontal. This is attained through the installation of stands of support.

-The distance between the edges of the support and the edges of the stand must not be lower than 50 mm and the same distance must be equally maintained between the edge of the stand and the edge of the basis.

-It is also recommended that the supports be installed so that subsequent inspection or replacement, if necessary be possible.

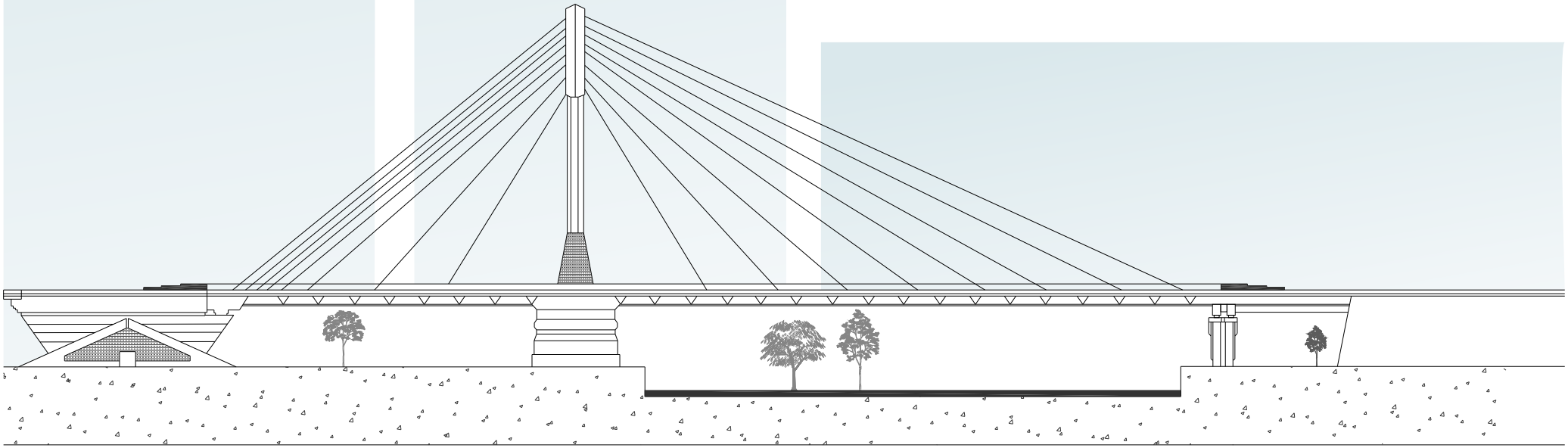


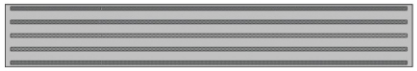
Deformation produced in the supports due to external compression loads. View of the performance of a normal reinforced support in contrast to another one not reinforced.

Normalized sizes of supports
TYPES PJ-B, PJ-C, PJ-E, PJ-F

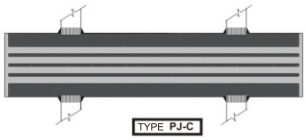
JEMA®

CAUCHOS JEMA, S.A.

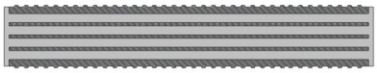




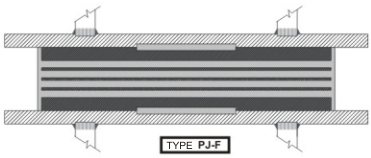
TYPE **PJ-B**



TYPE **PJ-C**



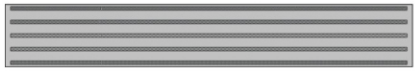
TYPE **PJ-E**



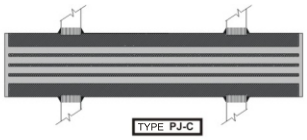
TYPE **PJ-F**

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B		Support type PJ-C, PJ-E y PJ-F						Maximum vertical load (mm)	Type PJ-C,PJ-E, PJ-F		
							Thickness (mm)		Thickness (mm)							Bolts		
a	b	a´	b´		Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
100	150	88	138	1	5	2	14	10	-	-	-	-			15,0	1	150	30
				2	5	2	21	15	42	32	72	10	8/10	15				
				3	5	2	28	20	49	39	79	15	8/10					
				4	5	2	35	25	56	46	86	20	8/10					
				5	5	2	42	30	63	53	93	25	8/10					
				6	5	2	_	_	70	60	100	30	8/10					
100	200	88	188	1	5	2	14	10	-	-	-	-			20,0	1	150	30
				2	5	2	21	15	42	32	72	10	8/10	15				
				3	5	2	28	20	49	39	79	15	8/10					
				4	5	2	35	25	56	46	86	20	8/10					
				5	5	2	42	30	63	53	93	25	8/10					
				6	5	2	_	_	70	60	100	30	8/10					
Ø	150	Ø	138	1	5	2	14	10	-	-	-	-			17,7	1	150	30
				2	5	2	21	15	42	32	72	10	8/10	15				
				3	5	2	28	20	49	39	79	15	8/10					
				4	5	2	35	25	56	46	86	20	8/10					
				5	5	2	42	30	63	53	93	25	8/10					
				6	5	2	49	35	70	60	100	30	8/10					
				7	5	2	56	40	77	67	107	35	8/10					
				8	5	2	63	45	84	74	114	40	8/10					
				9	5	2	_	_	91	81	121	45	8/10					
150	200	138	188	1	5	2	14	10	-	-	-	-			30,0	1	150	30
				2	5	2	21	15	42	32	72	10	8/10	15				
				3	5	2	28	20	49	39	79	15	8/10					
				4	5	2	35	25	56	46	86	20	8/10					
				5	5	2	42	30	63	53	93	25	8/10					
				6	5	2	49	35	70	60	100	30	8/10					
				7	5	2	56	40	77	67	107	35	8/10					
				8	5	2	63	45	84	74	114	40	8/10					
				9	5	2	_	_	91	81	121	45	8/10					
150	250	138	238	1	5	2	14	10	-	-	-	-			37,5	1	150	30
				2	5	2	21	15	42	32	72	10	8/10	15				
				3	5	2	28	20	49	39	79	15	8/10					
				4	5	2	35	25	56	46	86	20	8/10					
				5	5	2	42	30	63	53	93	25	8/10					
				6	5	2	49	35	70	60	100	30	8/10					
				7	5	2	56	40	77	67	107	35	8/10					
				8	5	2	63	45	84	74	114	40	8/10					
				9	5	2	_	_	91	81	121	45	8/10					

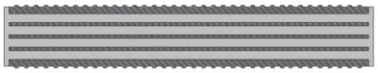
*Aproximate data.



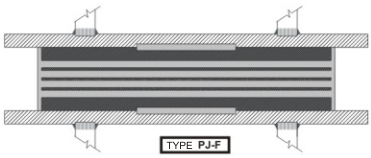
TYPE **PJ-B**



TYPE **PJ-C**



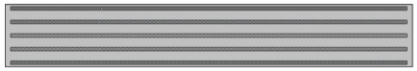
TYPE **PJ-E**



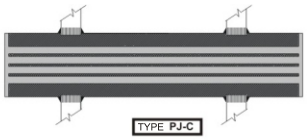
TYPE **PJ-F**

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B		Support type PJ-C, PJ-E y PJ-F						Maximum vertical load (mm)	Type PJ-C,PJ-E, PJ-F		
							Thickness (mm)		Thickness (mm)							Bolts		
a	b	a´	b´		Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
150	300	138	288	1	5	2	14	10	-	-	-	-			45,0	1	150	30
				2	5	2	21	15	42	32	72	10	8/10	15				
				3	5	2	28	20	49	39	79	15	8/10					
				4	5	2	35	25	56	46	86	20	8/10					
				5	5	2	42	30	63	53	93	25	8/10					
				6	5	2	49	35	70	60	100	30	8/10					
				7	5	2	56	40	77	67	107	35	8/10					
				8	5	2	63	45	84	74	114	40	8/10					
				9	5	2	_	_	91	81	121	45	8/10					
Ø	200	Ø	188	1	8	3	19	13	-	-	-	-			31,4	1	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
200	200	188	188	1	8	3	19	13	-	-	-	-			50,0	1	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
200	250	188	238	1	8	3	19	13	-	-	-	-			62,5	1	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
200	300	188	288	1	8	3	19	13	-	-	-	-			75,0	1	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
200	350	188	338	1	8	3	19	13	-	-	-	-			87,5	2	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					

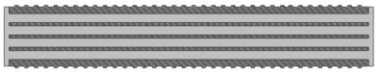
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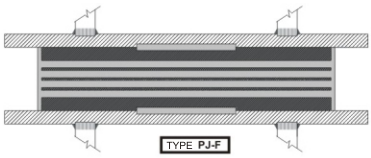
TYPE **PJ-B**



TYPE **PJ-C**



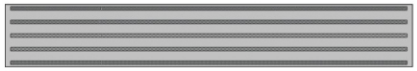
TYPE **PJ-E**



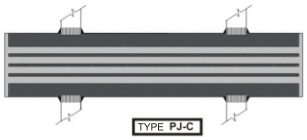
TYPE **PJ-F**

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B		Support type PJ-C, PJ-E y PJ-F						Maximum vertical load (mm)	Type PJ-C,PJ-E,PJ-F		
							Thickness (mm)		Thickness (mm)							Bolts		
a	b	a´	b´		Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
200	400	188	388	1	8	3	19	13	-	-	-	-			100,0	2	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
Ø	250	Ø	238	1	8	3	19	13	-	-	-	-			61,4	1	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
				8	8	3	96	69	115	105	145	64	8/10					
				9	8	3	_	_	126	116	156	72	8/10					
250	250	238	238	1	8	3	19	13	-	-	-	-			78,1	1	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
				8	8	3	96	69	115	105	145	64	8/10					
				9	8	3	_	_	126	116	156	72	8/10					
250	300	238	288	1	8	3	19	13	-	-	-	-			93,8	2	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
				8	8	3	96	69	115	105	145	64	8/10					
				9	8	3	_	_	126	116	156	72	8/10					
250	350	238	338	1	8	3	19	13	-	-	-	-			109,4	2	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
				8	8	3	96	69	115	105	145	64	8/10					
				9	8	3	_	_	126	116	156	72	8/10					

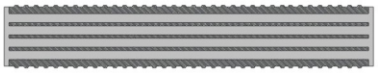
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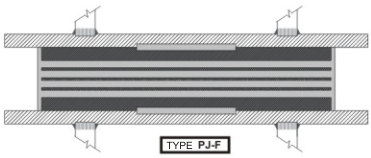
TYPE **PJ-B**



TYPE **PJ-C**



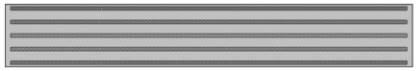
TYPE **PJ-E**



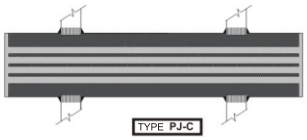
TYPE **PJ-F**

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B Thickness (mm)		Support type PJ-C, PJ-E y PJ-F Thickness (mm)						Maximum vertical load (mm)	Type PJ-C,PJ-E,PJ-F Bolts		
a	b	a´	b´		Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
250	400	238	388	1	8	3	19	13	-	-	-	-			125,0	2	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
				8	8	3	96	69	115	105	145	64	8/10					
				9	8	3	_	_	126	116	156	72	8/10					
Ø	300	Ø	288	1	8	3	19	13	-	-	-	-			88,4	1	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
				8	8	3	96	69	115	105	145	64	8/10					
				9	8	3	107	77	126	116	156	72	8/10					
				10	8	3	118	85	137	127	167	80	8/10					
				11	8	3	_	_	148	138	178	88	8/10					
300	300	288	288	1	8	3	19	13	-	-	-	-			135,0	2	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
				8	8	3	96	69	115	105	145	64	8/10					
				9	8	3	107	77	96	116	96	72	8/10					
				10	8	3	118	85	107	127	107	80	8/10					
				11	8	3	_	_	148	138	178	88	8/10					
300	350	288	338	1	8	3	19	13	-	-	-	-			157,5	2	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
				8	8	3	96	69	115	105	145	64	8/10					
				9	8	3	107	77	96	116	96	72	8/10					
				10	8	3	118	85	107	127	107	80	8/10					
				11	8	3	_	_	148	138	178	88	8/10					

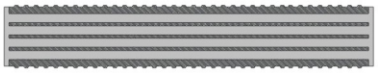
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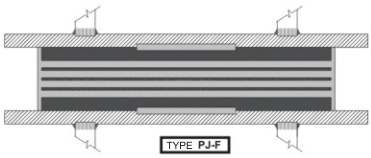
TYPE **PJ-B**



TYPE **PJ-C**



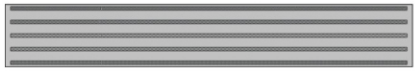
TYPE **PJ-E**



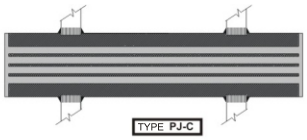
TYPE **PJ-F**

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B Thickness (mm)		Support type PJ-C, PJ-E y PJ-F Thickness (mm)						Maximum vertical load (mm)	Type PJ-C,PJ-E,PJ-F Bolts		
a	b	a´	b´		Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
300	400	288	388	1	8	3	19	13	-	-	-	-			180,0	2	150	30
				2	8	3	30	21	49	39	79	16	8/10	15				
				3	8	3	41	29	60	50	90	24	8/10					
				4	8	3	52	37	71	61	101	32	8/10					
				5	8	3	63	45	82	72	112	40	8/10					
				6	8	3	74	53	93	83	123	48	8/10					
				7	8	3	85	61	104	94	134	56	8/10					
				8	8	3	96	69	115	105	145	64	8/10					
				9	8	3	107	77	96	116	96	72	8/10					
				10	8	3	118	85	107	127	107	80	8/10					
				11	8	3	_	_	148	138	178	88	8/10					
350	350	338	338	2	11	4	39	27	56	46	86	22	8/10	15	183,8	2	200	30
				3	11	4	54	38	71	61	101	33	8/10					
				4	11	4	69	49	86	76	116	44	8/10					
				5	11	4	84	60	101	91	131	55	8/10					
				6	11	4	99	71	116	106	146	66	8/10					
				7	11	4	114	82	131	121	161	77	8/10					
				8	11	4	129	93	146	136	176	88	8/10					
				9	11	4	144	104	161	151	191	99	8/10					
350	400	338	388	2	11	4	39	27	56	46	86	22	8/10	15	210,0	2	200	30
				3	11	4	54	38	41	61	41	33	8/10					
				4	11	4	69	49	86	76	116	44	8/10					
				5	11	4	84	60	101	91	131	55	8/10					
				6	11	4	99	71	116	106	146	66	8/10					
				7	11	4	114	82	131	121	161	77	8/10					
				8	11	4	129	93	146	136	176	88	8/10					
				9	11	4	144	104	161	151	191	99	8/10					
350	450	338	438	1	11	4	24	16	-	-	-	-			236,3	4	200	30
				2	11	4	39	27	66	46	106	22	8/10	20				
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10					
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
350	500	338	488	1	11	4	24	16	-	-	-	-			262,5	4	200	30
				2	11	4	39	27	66	46	106	22	8/10	20				
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10					
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					

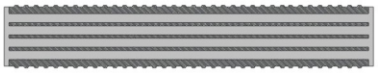
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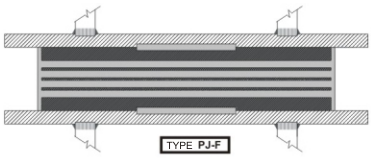
TYPE **PJ-B**



TYPE **PJ-C**



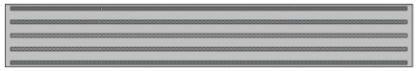
TYPE **PJ-E**



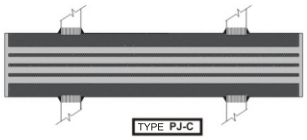
TYPE **PJ-F**

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B Thickness (mm)		Support type PJ-C, PJ-E y PJ-F Thickness (mm)						Maximum vertical load (mm)	Type PJ-C,PJ-E,PJ-F Bolts		
a	b	a´	b´		Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
Ø	400	Ø	388	1	11	4	24	16	-	-	-	-			188,5	4	200	30
				2	11	4	39	27	66	46	106	22	8/10	20				
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10					
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	_	_	201	181	241	121	8/10					
400	500	388	488	1	11	4	24	16	-	-	-	-			300,0	4	200	30
				2	11	4	39	27	66	46	106	22	8/10	20				
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10					
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	131	151	131	99	8/10					
				10	11	4	159	115	146	166	146	110	8/10					
				11	11	4	_	_	201	181	241	121	8/10					
400	550	388	538	1	11	4	24	16	-	-	-	-			330,0	4	200	30
				2	11	4	39	27	66	46	106	22	8/10	20				
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10					
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	131	151	131	99	8/10					
				10	11	4	159	115	146	166	146	110	8/10					
				11	11	4	_	_	201	181	241	121	8/10					
400	600	388	588	1	11	4	24	16	-	-	-	-			360,0	4	200	30
				2	11	4	39	27	66	46	106	22	8/10	20				
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10					
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	131	151	131	99	8/10					
				10	11	4	159	115	146	166	146	110	8/10					
				11	11	4	_	_	201	181	241	121	8/10					

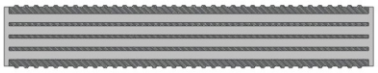
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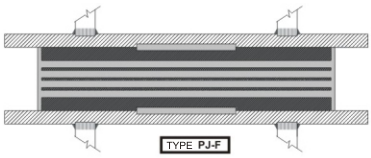
TYPE **PJ-B**



TYPE **PJ-C**



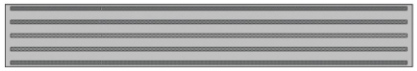
TYPE **PJ-E**



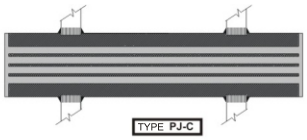
TYPE **PJ-F**

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B		Support type PJ-C, PJ-E y PJ-F						Maximum vertical load (mm)	Type PJ-C,PJ-E, PJ-F		
							Thickness (mm)		Thickness (mm)							Bolts		
a	b	a´	b´		Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
Ø	450	Ø	438	1	11	4	24	16	-	-	-	-			238,6	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	_	_	216	196	256	132	8/10					
450	450	438	438	1	11	4	24	16	-	-	-	-			303,8	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	_	_	216	196	256	132	8/10					
450	500	438	488	1	11	4	24	16	-	-	-	-			337,5	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	_	_	216	196	256	132	8/10					
450	550	438	538	1	11	4	24	16	-	-	-	-			371,3	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	_	_	216	196	256	132	8/10					

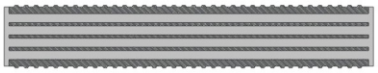
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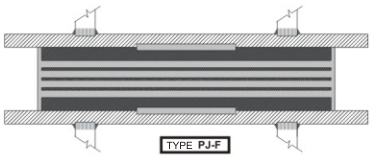
TYPE **PJ-B**



TYPE **PJ-C**



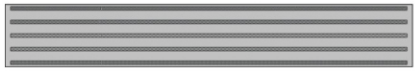
TYPE **PJ-E**



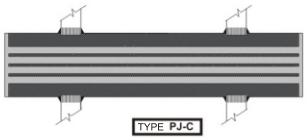
TYPE **PJ-F**

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B Thickness (mm)		Support type PJ-C, PJ-E y PJ-F Thickness (mm)						Maximum vertical load (mm)	Type PJ-C,PJ-E, PJ-F Bolts		
					Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
a	b	a´	b´															
450	600	438	588	1	11	4	24	16	-	-	-	-			405,0	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	_	_	216	196	256	132	8/10					
Ø	500	Ø	488	1	11	4	24	16	-	-	-	-			294,5	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	189	137	216	196	256	132	8/10					
				13	11	4	204	148	231	211	271	143	8/10					
Ø	550	Ø	538	1	11	4	24	16	-	-	-	-			356,4	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	189	137	216	196	256	132	8/10					
				13	11	4	204	148	231	211	271	143	8/10					
500	500	488	488	1	11	4	24	16	-	-	-	-			375,0	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	189	137	216	196	256	132	8/10					
				13	11	4	204	148	231	211	271	143	8/10					

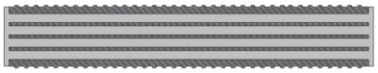
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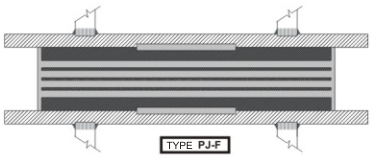
TYPE **PJ-B**



TYPE **PJ-C**



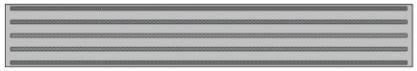
TYPE **PJ-E**



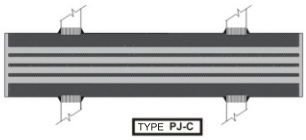
TYPE **PJ-F**

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B Thickness (mm)		Support type PJ-C, PJ-E y PJ-F Thickness (mm)						Maximum vertical load (mm)	Type PJ-C,PJ-E, PJ-F Bolts		
					Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
a	b	a´	b´															
500	550	488	538	1	11	4	24	16	-	-	-	-			412,5	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	189	137	216	196	256	132	8/10					
				13	11	4	204	148	231	211	271	143	8/10					
500	600	488	588	1	11	4	24	16	-	-	-	-			450,0	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	189	137	216	196	256	132	8/10					
				13	11	4	204	148	231	211	271	143	8/10					
550	550	538	538	1	11	4	24	16	-	-	-	-			453,8	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	189	137	216	196	256	132	8/10					
				13	11	4	204	148	231	211	271	143	8/10					
550	600	538	588	1	11	4	24	16	-	-	-	-			495,0	4	200	30
				2	11	4	39	27	66	46	106	22	8/10					
				3	11	4	54	38	81	61	121	33	8/10					
				4	11	4	69	49	96	76	136	44	8/10					
				5	11	4	84	60	111	91	151	55	8/10					
				6	11	4	99	71	126	106	166	66	8/10					
				7	11	4	114	82	141	121	181	77	8/10	20				
				8	11	4	129	93	156	136	196	88	8/10					
				9	11	4	144	104	171	151	211	99	8/10					
				10	11	4	159	115	186	166	226	110	8/10					
				11	11	4	174	126	201	181	241	121	8/10					
				12	11	4	189	137	216	196	256	132	8/10					
				13	11	4	204	148	231	211	271	143	8/10					

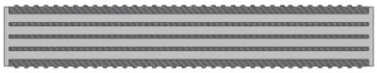
*Aproximate data.



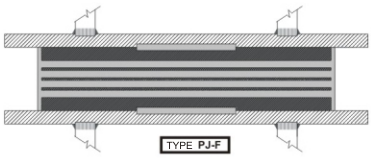
TYPE **PJ-B**



TYPE **PJ-C**



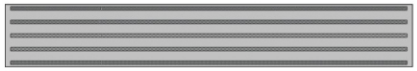
TYPE **PJ-E**



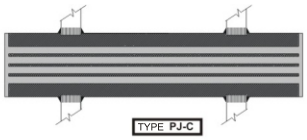
TYPE **PJ-F**

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B Thickness (mm)		Support type PJ-C, PJ-E y PJ-F Thickness (mm)						Maximum vertical load (mm)	Type PJ-C,PJ-E,PJ-F Bolts		
					Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
a	b	a´	b´															
Ø	600	Ø	588	1	15	5	30	20	-	-	-	-			424,1	6	200	30
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10	20				
				8	15	5	170	125	195	175	235	120	8/10					
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5			275	255	315	180	8/10					
Ø	650	Ø	638	1	15	5	30	20	-	-	-	-			497,7	6	200	30
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10	20				
				8	15	5	170	125	195	175	235	120	8/10					
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	_	_	275	255	315	180	8/10					
600	600	588	588	1	15	5	30	20	-	-	-	-			540,0	6	200	40
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10	20				
				8	15	5	170	125	195	175	235	120	8/10					
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	_	_	275	255	315	180	8/10					
600	650	588	638	1	15	5	30	20	-	-	-	-			585,0	6	200	40
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10	20				
				8	15	5	170	125	195	175	235	120	8/10					
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	_	_	275	255	315	180	8/10					

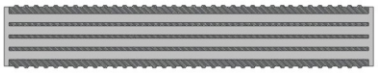
*Aproximate data.



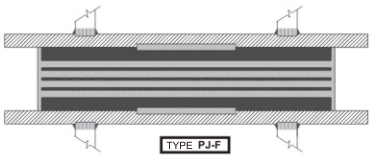
TYPE **PJ-B**



TYPE **PJ-C**



TYPE **PJ-E**

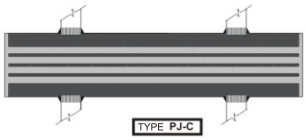


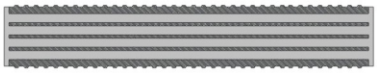
TYPE **PJ-F**

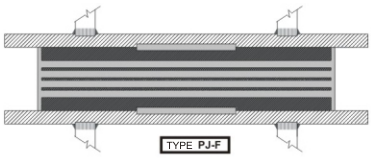
Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B		Support type PJ-C, PJ-E y PJ-F						Maximum vertical load (mm)	Type PJ-C,PJ-E,PJ-F		
							Thickness (mm)		Thickness (mm)							Bolts		
a	b	a´	b´		Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
600	700	588	688	1	15	5	30	20	-	-	-	-			630,0	6	200	40
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10	20				
				8	15	5	170	125	195	175	235	120	8/10					
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	_	_	275	255	315	180	8/10					
650	650	638	638	1	15	5	30	20	-	-	-	-			633,8	6	200	40
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10	20				
				8	15	5	170	125	195	175	235	120	8/10					
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	_	_	275	255	315	180	8/10					
650	700	638	688	1	15	5	30	20	-	-	-	-			682,5	6	200	40
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10	20				
				8	15	5	170	125	195	175	235	120	8/10					
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	_	_	275	255	315	180	8/10					
Ø	700	Ø	688	1	15	5	30	20	-	-	-	-			577,3	6	200	30
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10					
				8	15	5	170	125	195	175	235	120	8/10	20				
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	250	185	275	255	315	180	8/10					
				13	15	5	270	200	295	275	335	195	8/10					
				14	15	5	_	_	315	295	355	210	8/10					

*Aproximate data.


TYPE PJ-B

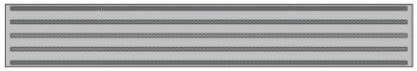

TYPE PJ-C

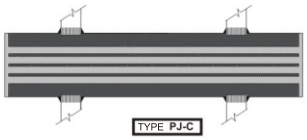

TYPE PJ-E

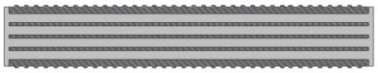

TYPE PJ-F

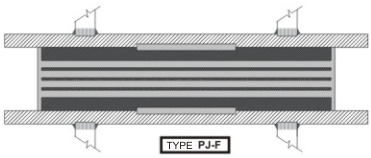
Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B Thickness (mm)		Support type PJ-C, PJ-E y PJ-F Thickness (mm)						Maximum vertical load (mm)	Type PJ-C,PJ-E,PJ-F Bolts		
					Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
a	b	a´	b´															
Ø	750	Ø	738	1	15	5	30	20	-	-	-	-			662,7	6	200	30
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10					
				8	15	5	170	125	195	175	235	120	8/10	20				
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	250	185	275	255	315	180	8/10					
				13	15	5	270	200	295	275	335	195	8/10					
				14	15	5	_	_	315	295	355	210	8/10					
700	700	688	688	1	15	5	30	20	-	-	-	-			735,0	6	200	40
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10					
				8	15	5	170	125	195	175	235	120	8/10	20				
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	250	185	275	255	315	180	8/10					
				13	15	5	270	200	295	275	335	195	8/10					
				14	15	5	_	_	315	295	355	210	8/10					
700	750	688	738	1	15	5	30	20	-	-	-	-			787,5	6	200	40
				2	15	5	50	35	75	55	115	30	8/10					
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10					
				8	15	5	170	125	195	175	235	120	8/10	20				
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	250	185	275	255	315	180	8/10					
				13	15	5	270	200	295	275	335	195	8/10					
				14	15	5	_	_	315	295	355	210	8/10					

*Aproximate data.


TYPE PJ-B

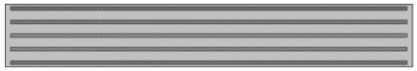

TYPE PJ-C


TYPE PJ-E

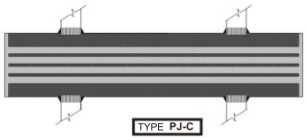

TYPE PJ-F

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B Thickness (mm)		Support type PJ-C, PJ-E y PJ-F Thickness (mm)						Maximum vertical load (mm)	Type PJ-C,PJ-E,PJ-F Bolts		
					Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
a	b	a´	b´															
700	800	688	788	1	15	5	30	20	-	-	-	-			840,0	6	200	40
				2	15	5	50	35	75	55	115	30	8/10	20				
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10					
				8	15	5	170	125	195	175	235	120	8/10					
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	250	185	275	255	315	180	8/10					
				13	15	5	270	200	295	275	335	195	8/10					
				14	15	5	_	_	315	295	355	210	8/10					
750	750	738	738	1	15	5	30	20	-	-	-	-			843,8	6	200	40
				2	15	5	50	35	75	55	115	30	8/10	20				
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10					
				8	15	5	170	125	195	175	235	120	8/10					
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	250	185	275	255	315	180	8/10					
				13	15	5	270	200	295	275	335	195	8/10					
				14	15	5	_	_	315	295	355	210	8/10					
750	800	738	788	1	15	5	30	20	-	-	-	-			900,0	6	200	40
				2	15	5	50	35	75	55	115	30	8/10	20				
				3	15	5	70	50	95	75	135	45	8/10					
				4	15	5	90	65	115	95	155	60	8/10					
				5	15	5	110	80	135	115	175	75	8/10					
				6	15	5	130	95	155	135	195	90	8/10					
				7	15	5	150	110	175	155	215	105	8/10					
				8	15	5	170	125	195	175	235	120	8/10					
				9	15	5	190	140	215	195	255	135	8/10					
				10	15	5	210	155	235	215	275	150	8/10					
				11	15	5	230	170	255	235	295	165	8/10					
				12	15	5	250	185	275	255	315	180	8/10					
				13	15	5	270	200	295	275	335	195	8/10					
				14	15	5	_	_	315	295	355	210	8/10					

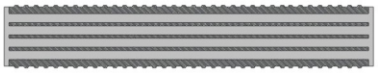
*Aproximate data.



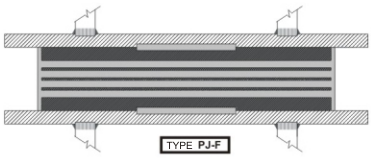
TYPE PJ-B



TYPE PJ-C



TYPE PJ-E



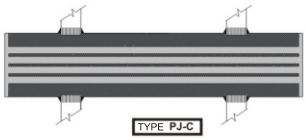
TYPE PJ-F

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B Thickness (mm)		Support type PJ-C, PJ-E y PJ-F Thickness (mm)						Maximum vertical load (mm)	Type PJ-C,PJ-E, PJ-F Bolts		
					Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
a	b	a´	b´															
Ø	800	Ø	788	1	18	5	33	23	-	-	-	-			754,0	6	200	30
				2	18	5	56	41	81	61	121	36	8/10					
				3	18	5	79	59	104	84	144	54	8/10					
				4	18	5	102	77	127	107	167	72	8/10					
				5	18	5	125	95	150	130	190	90	8/10					
				6	18	5	148	113	173	153	213	108	8/10					
				7	18	5	171	131	196	176	236	126	8/10	20				
				8	18	5	194	149	219	199	259	144	8/10					
				9	18	5	217	167	242	222	282	162	8/10					
				10	18	5	240	185	265	245	305	180	8/10					
				11	18	5	263	203	288	268	328	198	8/10					
				12	18	5	286	221	311	291	351	216	8/10					
				13	18	5	309	239	334	314	374	234	8/10					
Ø	850	Ø	838	1	18	5	33	23	-	-	-	-			851,2	6	200	30
				2	18	5	56	41	81	61	121	36	8/10					
				3	18	5	79	59	104	84	144	54	8/10					
				4	18	5	102	77	127	107	167	72	8/10					
				5	18	5	125	95	150	130	190	90	8/10					
				6	18	5	148	113	173	153	213	108	8/10					
				7	18	5	171	131	196	176	236	126	8/10	20				
				8	18	5	194	149	219	199	259	144	8/10					
				9	18	5	217	167	242	222	282	162	8/10					
				10	18	5	240	185	265	245	305	180	8/10					
				11	18	5	263	203	288	268	328	198	8/10					
				12	18	5	286	221	311	291	351	216	8/10					
				13	18	5	309	239	334	314	374	234	8/10					
800	800	788	788	1	18	5	33	23	-	-	-	-			960,0	6	200	40
				2	18	5	56	41	81	61	121	36	8/10					
				3	18	5	79	59	104	84	144	54	8/10					
				4	18	5	102	77	127	107	167	72	8/10					
				5	18	5	125	95	150	130	190	90	8/10					
				6	18	5	148	113	173	153	213	108	8/10					
				7	18	5	171	131	196	176	236	126	8/10	20				
				8	18	5	194	149	219	199	259	144	8/10					
				9	18	5	217	167	242	222	282	162	8/10					
				10	18	5	240	185	265	245	305	180	8/10					
				11	18	5	263	203	288	268	328	198	8/10					
				12	18	5	286	221	311	291	351	216	8/10					
				13	18	5	309	239	334	314	374	234	8/10					
800	850	788	838	1	18	5	33	23	-	-	-	-			1020,0	6	200	40
				2	18	5	56	41	81	61	121	36	8/10					
				3	18	5	79	59	104	84	144	54	8/10					
				4	18	5	102	77	127	107	167	72	8/10					
				5	18	5	125	95	150	130	190	90	8/10					
				6	18	5	148	113	173	153	213	108	8/10					
				7	18	5	171	131	196	176	236	126	8/10	20				
				8	18	5	194	149	219	199	259	144	8/10					
				9	18	5	217	167	242	222	282	162	8/10					
				10	18	5	240	185	265	245	305	180	8/10					
				11	18	5	263	203	288	268	328	198	8/10					
				12	18	5	286	221	311	291	351	216	8/10					
				13	18	5	309	239	334	314	374	234	8/10					

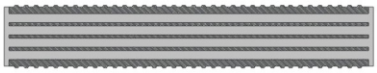
*Aproximate data.



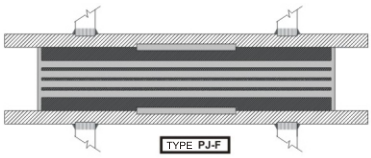
TYPE PJ-B



TYPE PJ-C



TYPE PJ-E



TYPE PJ-F

Dimension a x b o D (m.m.)		Dimension of reinforcing steel plate (m.m.)		Number of layers of elasto-mere (n)	Thickness (mm)		Support type PJ-B Thickness (mm)		Support type PJ-C, PJ-E y PJ-F Thickness (mm)						Maximum vertical load (mm)	Type PJ-C,PJ-E,PJ-F Bolts		
					Elastomere (ti)	Reinforcing plates (ts)	Total (tb)	Net (te)	Total PJ-C	Total PJ-E	Total PJ-F	Net (te)	External plates Type PJ-E	External plates Type PJ-C Type PJ-F		N°	Length (mm)	Ø (mm)
a	b	a´	b´															
850	850	838	838	1	18	5	33	23	-	-	-	-			1083,8	6	200	40
				2	18	5	56	41	81	61	121	36	8/10	20				
				3	18	5	79	59	104	84	144	54	8/10					
				4	18	5	102	77	127	107	167	72	8/10					
				5	18	5	125	95	150	130	190	90	8/10					
				6	18	5	148	113	173	153	213	108	8/10					
				7	18	5	171	131	196	176	236	126	8/10					
				8	18	5	194	149	219	199	259	144	8/10					
				9	18	5	217	167	242	222	282	162	8/10					
				10	18	5	240	185	265	245	305	180	8/10					
				11	18	5	263	203	288	268	328	198	8/10					
				12	18	5	286	221	311	291	351	216	8/10					
				13	18	5	309	239	334	314	374	234	8/10					
Ø	900	Ø	888	1	18	5	33	23	-	-	-	-			954,3	6	200	30
				2	18	5	56	41	81	61	121	36	8/10	20				
				3	18	5	79	59	104	84	144	54	8/10					
				4	18	5	102	77	127	107	167	72	8/10					
				5	18	5	125	95	150	130	190	90	8/10					
				6	18	5	148	113	173	153	213	108	8/10					
				7	18	5	171	131	196	176	236	126	8/10					
				8	18	5	194	149	219	199	259	144	8/10					
				9	18	5	217	167	242	222	282	162	8/10					
				10	18	5	240	185	265	245	305	180	8/10					
				11	18	5	263	203	288	268	328	198	8/10					
				12	18	5	286	221	311	291	351	216	8/10					
				13	18	5	309	239	334	314	374	234	8/10					
				14	18	5	332	257	357	337	397	252	8/10					
				15	18	5	_	_	380	360	420	270	8/10					
900	900	888	888	1	18	5	33	23	-	-	-	-			1215,0	6	200	40
				2	18	5	56	41	81	61	121	36	8/10	20				
				3	18	5	79	59	104	84	144	54	8/10					
				4	18	5	102	77	127	107	167	72	8/10					
				5	18	5	125	95	150	130	190	90	8/10					
				6	18	5	148	113	173	153	213	108	8/10					
				7	18	5	171	131	196	176	236	126	8/10					
				8	18	5	194	149	219	199	259	144	8/10					
				9	18	5	217	167	242	222	282	162	8/10					
				10	18	5	240	185	265	245	305	180	8/10					
				11	18	5	263	203	288	268	328	198	8/10					
				12	18	5	286	221	311	291	351	216	8/10					
				13	18	5	309	239	334	314	374	234	8/10					
				14	18	5	332	257	357	337	397	252	8/10					
				15	18	5	_	_	380	360	420	270	8/10					

*Aproximate data.

Certification CE/ISO 9001:2008



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Applus

CE CERTIFICADO

Organismo notificado Nº 0370

Núm. 0370-CPD-0769

CERTIFICADO DE CONFORMIDAD CE

En cumplimiento con la Directiva 89/106/CEE del Consejo de las Comunidades Europeas de 21 de diciembre de 1988 relativa a la aproximación de las disposiciones legales, reglamentarias y administrativas de los Estados Miembros sobre los productos de la construcción (Directiva de Productos de Construcción-CPD), modificada por la Directiva 93/68/CEE del Consejo de las Comunidades Europeas de 22 de julio de 1993, se ha verificado que el producto de construcción:

APOYOS ESTRUCTURALES. PARTE 3: APOYOS ELASTOMÉRICOS

Suministrado al mercado por:

CAUCHOS JEMA, S.A.
C/ ALAMO, 4 – P.I. EL ÁLAMO
28970 HUMANES (MADRID)

Y fabricado en:

CAUCHOS JEMA, S.A.
C/ ALAMO, 4 – P.I. EL ÁLAMO
28970 HUMANES (MADRID)

se somete por parte del fabricante a un control de producción en fábrica y al ensayo posterior de las muestras tomadas en fábrica de acuerdo con un plan de ensayo preestablecido y que el organismo notificado - LGAI TECHNOLOGICAL CENTER – ha llevado a cabo el ensayo inicial de tipo de las características significativas del producto, la inspección inicial de la fábrica y del control de producción en fábrica y que realiza el seguimiento periódico, la evaluación y la aprobación del control de producción en fábrica.

Este certificado indica que se han aplicado todas las disposiciones relativas a la evaluación de la conformidad y especificaciones descritas en el Anexo ZA de la norma

EN 1337-3:2005

arriba mencionada y que el producto cumple todos los requisitos especificados.

Este certificado fue emitido por primera vez en 30 de Enero de 2009 y su validez permanece mientras no se modifiquen significativamente las condiciones en la especificación técnica armonizada relativa a las condiciones de producción en fábrica o su FPC, y su última emisión en 30 de Enero de 2009.

Bellaterra, 30 de Enero de 2009

Director General — Ramon Capellades i Font

Director Área Certificación de Producto — Xavier Ruiz Peña

Applus LGAI TECHNOLOGICAL CENTER, S.A.



BUREAU VERITAS Certification

Certification

Awarded to

CAUCHOS JEMA, S.A.

MADRID

C/ ÁLAMO, 4, POL. IND. EL ALAMO, 28970, HUMANES DE MADRID,

Bureau Veritas certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

STANDARD

ISO 9001:2008

SCOPE OF SUPPLY

MANUFACTURING AND MARKETING OF RUBBER AND METAL-RUBBER VULCANIZED PARTS FOR DE AUTOMOBILE, CIVIL WORKS AND OTHER INDUSTRIES.

Original Approval Date : **18 June 2001**

Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until :
11 July 2014

To check the validity of this certificate please call : 91 270 22 00
Further clarification regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation

Certificate Number ES035304 *Date:* 12 July 2011

Managing office: BUREAU VERITAS CERTIFICATION SA
Issuing office: BUREAU VERITAS CERTIFICATION SA
C/ Valportillo Primera 22-24
Edificio Caoba, Pol. Ind. La granja
28108 Alcobendas Madrid

ENAC CERTIFICACIÓN Nº 04/C-SC004



CAUCHOS JEMA, S.A.

Factory and offices:

Polígono Industrial “EL ÁLAMO”
Calle Álamo, 4 • 28970 Humanes
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