



ELASTOMERIC BEARINGS **ESAFLON**

Elastomeric bearings are structural bearings that allow rotation around any axis and movements in any horizontal direction by elastic deformation.



ELASTOMERIC BEARINGS

SOMMA “ESAFLON” bearings are structural devices, manufactured through a vulcanization process that bonds alternating layers of elastomer and steel. Engineered to absorb movements in any horizontal direction and rotations around all axes, they ensure reliable flexibility through elastic deformation. The internal steel plates provide high vertical stiffness while maintaining flexibility under horizontal loads. Installation is simple and secure, with options for mechanical anchoring or friction-based connection.

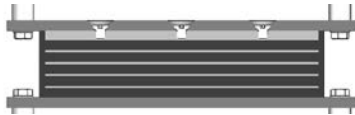


TYPE A

Laminated bearing fully covered with elastomer comprising only one steel reinforcing plate.

TYPE B

Laminated bearing fully covered with elastomer comprising at least two steel reinforcing plates.

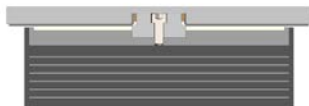
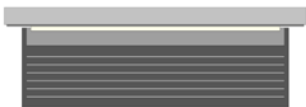


TYPE C

Laminated bearing with outer steel plates (profiled or allowing fixing).

TYPE D

Laminated bearing with outer steel plates (profiled or allowing fixing).



TYPE E

Type C with one outer plate bonded to the elastomer and PTFE sheet recessed in the steel.

TYPE F

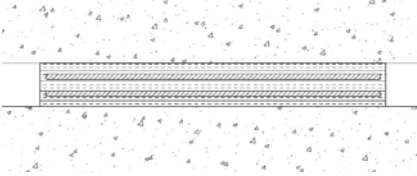
Rubber pad bearing without laminated steel.



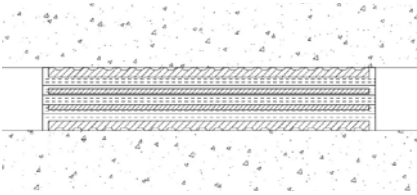
The ESAFLON devices are CE marked according to EN 1337 or comply to AASHTO LRFD standard.

ANCHORING SYSTEM

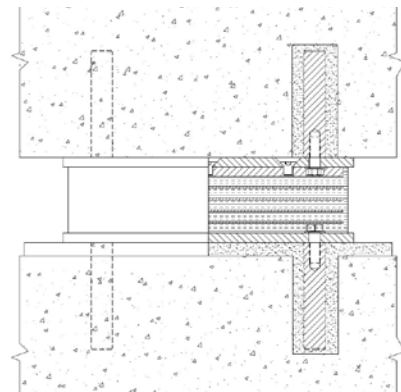
Different types of anchorages to the structure can be engineered:



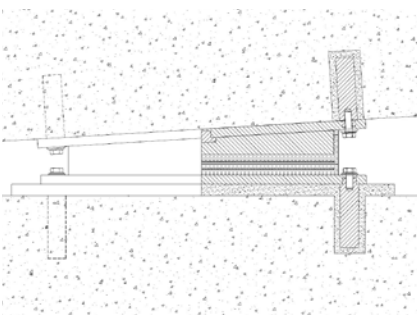
- For types A, B, D, E, and F: **Friction**, through the loads transferred by contact between the bearing and the structure.



- For type C: **Improved adhesion** through corrugated plates.



- For type C, D and E: **Mechanical anchorage**, system used to securely connect the bearing to the structure, both above and below, especially when horizontal loads are significant or when installed in seismic areas. Connections can be made using long anchor bolts, standard bolts, or pins.



- **Masonry plates:** if necessary, SOMMA designs and supplies steel masonry plates.

All connections and interfaces to the structure can be designed and adapted according to the necessity of the client. It is possible to provide tapered plates for slope.



THE ADVANTAGES OF THE ESAFLON ELASTOMERIC BEARINGS

- Low cost
- Long durability
- Ease to install
- Protection of structural components
- Ease to replace

KEY TO LABEL

- **ESA AxBxH : Elastomeric bearing ESAFLON type with the following dimensions:**
- **A** = Dimension of the elastomer in longitudinal direction
- **B** = Dimension of the elastomer in transversal direction
- **H** = Total height

ELEMENT	MATERIAL	STANDARD	TYPE
ELASTOMER	NATURAL RUBBER 60 Sh A3	EN 1337	A-B-C-D-E-F
INTERNAL STEEL REINFORCING PLATES	S235JR	EN 10025	A-B-C-D-E
OUTER STEEL PLATES	S235JR/S355J2	EN 10025	C-E
LOW FRICTION SURFACE	PTFE	EN 1337	D-E
ANCHORS	C45Bon. / 39NiCrMo3	EN 10083	C

If requested is possible to use different material according to the reference Standard or to particular Specifications.

		DISPOSITIVE TYPE	YEAR	JOB	F _{z,d} [kN]	H _z [kN]	H _y [kN]
		DISPOSITIVE CODE	ORDER	SERIAL NUMBER	RANK	d _z [mm]	d _y [mm]

ANTI-CORROSIVE PROTECTION

For type C, D and E, the components exposed to atmospheric agents are protected with C5H anticorrosive treatment compliant with ISO 12944-5, made with Sa 2.5 white metal sandblasting, a bicomponent epoxy primer and a polyurethane finish.

On request, depending on the atmospheric agents acting on the device, it is possible to apply different protective treatments.



QUALITY ENSURANCE

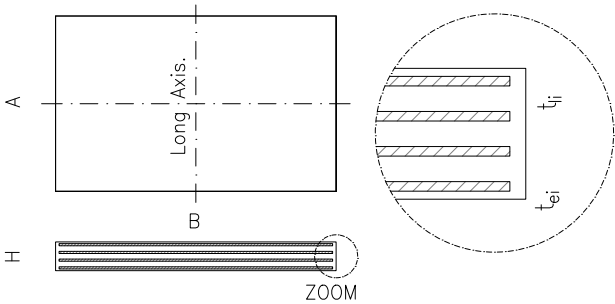
SOMMA is CE certified according to EN1337 for the design and production of bearing devices and operates according to ISO 9001, ISO 14001 and to ISO 45001 quality system. The entire design and production process is carried out according to the requirements of EN 1337.

Independent third parties carry out regular inspections to verify the compliance to the regulations.

For production according to EN 1337, SOMMA issues the declaration of Constancy of Performance.

ESAFILON BEARINGS

TYPE B



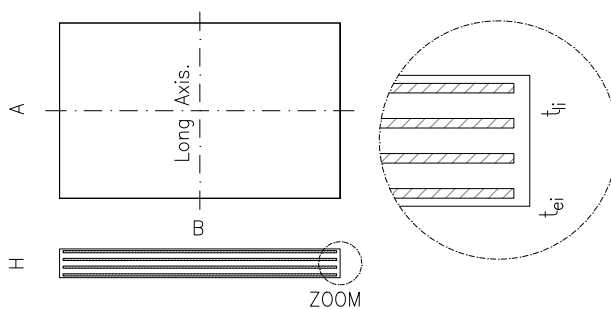
	COMBO 1: Maximum vertical load				COMBO 2: Maximum displacement		
ID	F _z [kN]	F _{z, min} [kN]	F _{xyd} [kN]	S _{eq} [±mm]	F _{zd} [kN]	F _{xyd} [kN]	S _{eq} [±mm]
ESA B 100x150x28	236	42	4.1	4.5	190	13.5	15.0
ESA B 100x150x42	136	55	4.1	7.5	107	13.5	25.0
ESA B 100x150x56	94	70	4.1	10.5	65	13.5	35.0
ESA B 100x200x28	348	53	5.4	4.5	275	18.0	15.0
ESA B 100x200x42	206	69	5.4	7.5	162	18.0	25.0
ESA B 100x200x56	142	87	5.4	10.5	98	18.0	35.0
ESA B 150x200x31	597	77	8.1	5.4	490	27.0	18.0
ESA B 150x200x47	468	82	8.1	9.0	393	27.0	30.0
ESA B 150x200x63	325	105	8.1	12.6	250	25.7	40.0
ESA B 150x250x31	795	97	10.1	5.4	275	33.8	18.0
ESA B 150x250x47	648	100	10.1	9.0	162	33.8	30.0
ESA B 150x250x63	450	130	10.1	12.6	98	33.8	42.0
ESA B 150x300x31	960	118	12.2	5.4	780	40.5	18.0
ESA B 150x300x47	836	120	12.2	9.0	702	40.5	30.0
ESA B 150x300x63	581	150	12.2	12.6	447	40.5	42.0
ESA B 200x250x34	1096	135	13.5	6.3	920	45.0	21.0
ESA B 200x250x52	1062	130	13.5	10.5	915	45.0	35.0
ESA B 200x250x70	740	148	13.5	14.7	590	45.0	49.0
ESA B 200x300x34	1370	160	16.2	6.3	1140	54.0	21.0
ESA B 200x300x52	1340	160	16.2	10.5	1150	54.0	35.0
ESA B 200x300x70	960	175	16.2	14.7	780	54.0	49.0
ESA B 200x350x38	1620	190	18.9	6.3	1330	63.0	21.0
ESA B 200x350x58	1730	185	18.9	10.5	1390	63.0	35.0
ESA B 200x350x78	1205	200	18.9	14.7	970	63.0	49.0
ESA B 200x400x38	1820	215	21.6	6.3	1470	72.0	21.0
ESA B 200x400x58	2080	215	21.6	10.5	1600	72.0	35.0
ESA B 200x400x78	1440	230	21.6	14.7	1150	72.0	49.0
ESA B 250x300x41	1780	205	20.3	7.2	1475	67.5	24.0

F_{zd}	maximum vertical load	A	longitudinal dimension
F_{zmin}	minimum vertical load	B	transversal dimension
F_{xyd}	orizontal load	H	height
S_{eq}	displacement	n_{ei}	number of internal rubber layers
K_H	horizontal stiffness	t_{ei}	thickness of internal rubber layers
K_V	vertical stiffness	t_{li}	thickness of internal steel plates
		W	weight

Stiffness		Dimensional data						Weight
K _H [kN/mm]	K _V [kN/mm]	A [mm]	B [mm]	H [mm]	n _{ei} [-]	t _{ei} [mm]	t _{li} [mm]	W [Kg]
0.90	79	100	150	28	3	5	2	1.4
0.54	53	100	150	42	5	5	2	2.1
0.39	40	100	150	56	7	5	2	2.8
1.20	132	100	200	28	3	5	2	1.9
0.72	88	100	200	42	5	5	2	2.8
0.51	66	100	200	56	7	5	2	3.7
1.50	213	150	200	31	3	6	2	3.1
0.90	140	150	200	47	5	6	2	4.6
0.64	104	150	200	63	7	6	2	6.2
1.88	318	150	250	31	3	6	2	3.8
1.13	209	150	250	47	5	6	2	5.8
0.80	155	150	250	63	7	6	2	7.7
2.25	431	150	300	31	3	6	2	4.6
1.35	283	150	300	47	5	6	2	7
0.96	211	150	300	63	7	6	2	9.3
2.14	401	200	250	34	3	7	2	5.5
1.29	260	200	250	52	5	7	2	8.3
0.92	193	200	250	70	7	7	2	11.1
2.57	556	200	300	34	3	7	2	6.6
1.54	361	200	300	52	5	7	2	10
1.10	268	200	300	70	7	7	2	13.4
3.00	724	200	350	38	3	7	3	9.7
1.80	470	200	350	58	5	7	3	14.7
1.29	348	200	350	78	7	7	3	19.7
3.43	899	200	400	38	3	7	3	11.1
2.06	584	200	400	58	5	7	3	16.9
1.47	433	200	400	78	7	7	3	22.6
2.81	631	250	300	41	3	8	3	10.9

ESAFILON BEARINGS

TYPE B



	COMBO 1: Maximum vertical load				COMBO 2: Maximum displacement		
ID	F _z [kN]	F _{z, min} [kN]	F _{xyd} [kN]	S _{eq} [±mm]	F _{zd} [kN]	F _{xyd} [kN]	S _{eq} [±mm]
ESA B 250x300x63	1920	200	20.3	12	1505	67.5	40
ESA B 250x300x85	1360	200	20.3	16.8	1140	63	56
ESA B 250x400x41	2450	275	27	7.2	2005	90	24
ESA B 250x400x63	2650	270	27	12	2155	90	40
ESA B 250x400x85	2050	265	27	16.8	1750	90	56
ESA B 250x500x41	2850	345	33.8	7.2	2300	112.5	24
ESA B 250x500x63	3335	340	33.8	12	2695	112.5	40
ESA B 250x500x85	2830	335	33.8	16.8	2380	112.5	56
ESA B 300x400x48	3020	335	32.4	8.1	2485	108	27
ESA B 300x400x74	3200	325	32.4	13.5	2660	108	45
ESA B 300x400x100	2620	320	32.4	18.9	2285	108	63
ESA B 300x500x48	3690	420	40.5	8.1	3005	135	27
ESA B 300x500x74	4000	410	40.5	13.5	3425	135	45
ESA B 300x500x100	3690	400	40.5	18.9	3150	135	63
ESA B 300x600x48	4020	500	48.6	8.1	3190	162	27
ESA B 300x600x74	4850	495	48.6	13.5	4010	162	45
ESA B 300x600x100	4750	485	48.6	18.9	4100	162	63
ESA B 350x500x51	4450	490	47.3	9	3650	157.5	30
ESA B 350x500x79	4700	480	47.3	15	4100	157.5	50
ESA B 350x500x107	4500	470	47.3	21	3850	157.5	70
ESA B 350x600x51	5120	590	56.7	9	4090	189	30
ESA B 350x600x79	5700	580	56.7	15	4900	189	50
ESA B 350x600x107	5500	570	56.7	21	4700	189	70
ESA B 350x700x51	5350	690	66.2	9	4130	220.5	30
ESA B 350x700x79	6700	680	66.2	15	5590	220.5	50
ESA B 350x700x107	6570	670	66.2	21	5550	220.5	70
ESA B 400x500x65	5530	560	54	12	4750	180	40
ESA B 400x500x93	5400	550	54	18	4800	180	60

COMBO 1 - Rubber Deformation: $\nu=0.3$

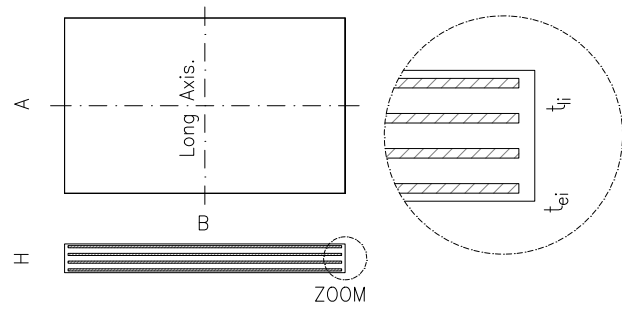
COMBO 2 - Rubber Deformation: $\nu=1$

F_{zd}	maximum vertical load	A	longitudinal dimension
F_{zmin}	minimum vertical load	B	transversal dimension
F_{xyd}	orizontal load	H	height
S_{eq}	displacement	n_{ei}	number of internal rubber layers
K_H	horizontal stiffness	t_{ei}	thickness of internal rubber layers
K_V	vertical stiffness	t_{li}	thickness of internal steel plates
		W	weight

Stiffness		Dimensional data						Weight
K _H [kN/mm]	K _V [kN/mm]	A [mm]	B [mm]	H [mm]	n _{ei} [-]	t _{ei} [mm]	t _{li} [mm]	W [Kg]
1.69	407	250	300	63	5	8	3	16.6
1.21	300	250	300	85	7	8	3	22.3
3.75	1048	250	400	41	3	8	3	14.6
2.25	675	250	400	63	5	8	3	22.2
1.61	498	250	400	85	7	8	3	29.8
4.69	1506	250	500	41	3	8	3	18.3
2.81	970	250	500	63	5	8	3	27.9
2.01	716	250	500	85	7	8	3	37.4
4	1139	300	400	48	3	9	4	21.9
2.4	729	300	400	74	5	9	4	33.3
1.71	536	300	400	100	7	9	4	44.7
5	1663	300	500	48	3	9	4	27.4
3	1064	300	500	74	5	9	4	41.8
2.14	782	300	500	100	7	9	4	56.1
6	2223	300	600	48	3	9	4	33
3.6	1423	300	600	74	5	9	4	50.2
2.57	1046	300	600	100	7	9	4	67.5
5.25	1758	350	500	51	3	10	4	33.2
3.15	1119	350	500	79	5	10	4	50.6
2.25	820	350	500	107	7	10	4	68.1
6.3	2377	350	600	51	3	10	4	39.9
3.78	1513	350	600	79	5	10	4	60.9
2.7	1109	350	600	107	7	10	4	81.9
7.35	3028	350	700	51	3	10	4	46.6
4.41	1927	350	700	79	5	10	4	71.1
3.15	1413	350	700	107	7	10	4	95.7
4.5	1780	400	500	65	4	10	4	48
3	1232	400	500	93	6	10	4	68

ESAFLON BEARINGS

TYPE B



	COMBO 1: Maximum vertical load				COMBO 2: Maximum displacement		
ID	F _z [kN]	F _{z, min} [kN]	F _{xyd} [kN]	S _{eq} [±mm]	F _{zd} [kN]	F _{xyd} [kN]	S _{eq} [±mm]
ESA B 400x500x121	5350	540	54	24	4500	180	80
ESA B 400x600x65	6600	670	64.8	12	5620	216	40
ESA B 400x600x93	6400	660	64.8	18	5800	216	60
ESA B 400x600x121	6400	650	64.8	24	5400	216	80
ESA B 400x700x65	7780	790	75.6	12	6050	252	40
ESA B 400x700x93	7650	780	75.6	18	6800	252	60
ESA B 400x700x121	7500	770	75.6	24	6300	252	80
ESA B 450x600x74	7400	770	72.9	13.2	6450	243	44
ESA B 450x600x106	7400	760	72.9	19.8	6500	243	66
ESA B 450x600x138	7200	750	72.9	26.4	6200	243	88
ESA B 450x700x74	8750	900	85.1	13.2	7250	283.5	44
ESA B 450x700x106	8650	890	85.1	19.8	7650	283.5	66
ESA B 450x700x138	8500	875	85.1	26.4	7250	283.5	88
ESA B 450x800x74	9800	1050	97.2	13.2	7650	324	44
ESA B 450x800x106	9800	1000	97.2	19.8	8700	324	66
ESA B 450x800x138	9750	985	97.2	26.4	8200	324	88
ESA B 500x600x78	8300	860	81	14.4	7250	270	48
ESA B 500x600x112	8100	850	81	21.6	7300	270	72
ESA B 500x600x146	8100	835	81	28.8	6900	270	96
ESA B 500x700x78	9700	1050	94.5	14.4	8300	315	48
ESA B 500x700x112	9650	990	94.5	21.6	8600	315	72
ESA B 500x700x146	9500	970	94.5	28.8	8100	315	96
ESA B 500x800x78	11000	1150	108	14.4	9050	360	48
ESA B 500x800x112	11000	1120	108	21.6	9850	360	72
ESA B 500x800x146	10800	1100	108	28.8	9300	360	96
ESA B 600x800x105	13400	1400	129.6	21	12200	432	70
ESA B 600x800x143	13200	1350	129.6	29.4	11600	432	98
ESA B 600x800x181	12900	1320	129.6	37.8	10800	432	126

COMBO 1 - Rubber Deformation: $\nu=0.3$

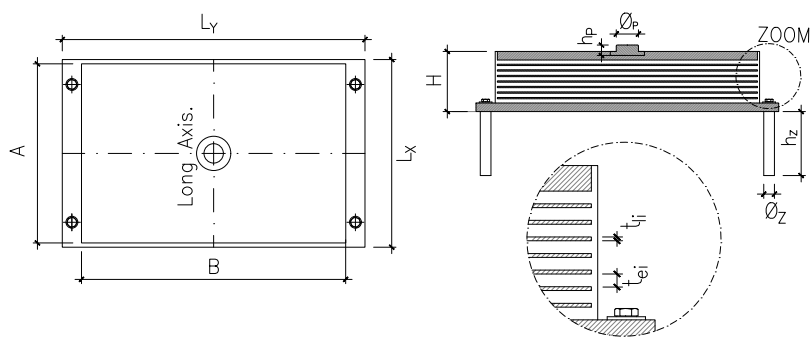
COMBO 2 - Rubber Deformation: $\nu=1$

F_{zd}	maximum vertical load	A	longitudinal dimension
F_{zmin}	minimum vertical load	B	transversal dimension
F_{xyd}	orizontal load	H	height
S_{eq}	displacement	n_{ei}	number of internal rubber layers
K_H	horizontal stiffness	t_{ei}	thickness of internal rubber layers
K_V	vertical stiffness	t_{li}	thickness of internal steel plates
		W	weight

Stiffness		Dimensional data						Weight
K _H [kN/mm]	K _V [kN/mm]	A [mm]	B [mm]	H [mm]	n _{ei} [-]	t _{ei} [mm]	t _{li} [mm]	W [Kg]
2.25	942	400	500	121	8	10	4	88
5.4	2420	400	600	65	4	10	4	57.7
3.6	1675	400	600	93	6	10	4	81.8
2.7	1281	400	600	121	8	10	4	105.8
6.3	3093	400	700	65	4	10	4	67.4
4.2	2143	400	700	93	6	10	4	95.5
3.15	1638	400	700	121	8	10	4	123.6
5.52	2415	450	600	74	4	11	5	77.4
3.68	1667	450	600	106	6	11	5	109.7
2.76	1272	450	600	138	8	11	5	141.9
6.44	3113	450	700	74	4	11	5	90.5
4.3	2148	450	700	106	6	11	5	128.1
3.22	1640	450	700	138	8	11	5	165.8
7.36	3841	450	800	74	4	11	5	103.5
4.91	2651	450	800	106	6	11	5	146.6
3.68	2023	450	800	138	8	11	5	189.7
5.63	2385	500	600	78	4	12	5	88.5
3.75	1642	500	600	112	6	12	5	125.6
2.81	1251	500	600	146	8	12	5	162.7
6.56	3098	500	700	78	4	12	5	103.5
4.38	2132	500	700	112	6	12	5	146.8
3.28	1625	500	700	146	8	12	5	190.1
7.5	3845	500	800	78	4	12	5	118.4
5	2646	500	800	112	6	12	5	168
3.75	2017	500	800	146	8	12	5	217.5
6.17	3065	600	800	105	5	14	5	181.8
4.41	2232	600	800	143	7	14	5	245.2
3.43	1755	600	800	181	9	14	5	308.7

ESAFLON BEARINGS

TYPE C



	COMBO 1: Maximum vertical load				COMBO 2: Maximum displacement			Stiffness	
ID	F _{Zd} [kN]	F _{Z, min} [kN]	F _{xyd} [kN]	S _{eq} [±mm]	F _{Zd} [kN]	F _{xyd} [kN]	S _{eq} [±mm]	K _H [kN/mm]	K _V [kN/mm]
ESA C 100x150x49	236	32	4.1	4.5	197	13.5	15.0	0.90	106
ESA C 100x150x63	136	20	4.1	7.5	107	13.5	25.0	0.54	64
ESA C 100x150x77	94	14	4.1	10.5	65	13.5	35.0	0.39	46
ESA C 100x200x49	357	53	5.4	4.5	299	18.0	15.0	1.20	177
ESA C 100x200x63	206	32	5.4	7.5	162	18.0	25.0	0.72	106
ESA C 100x200x77	142	23	5.4	10.5	98	18.0	35.0	0.51	76
ESA C 150x200x52	597	128	8.1	5.4	518	27.0	18.0	1.50	272
ESA C 150x200x68	468	77	8.1	9.0	393	27.0	30.0	0.90	163
ESA C 150x200x84	325	55	8.1	12.6	250	27.0	42.0	0.64	117
ESA C 150x250x52	827	190	10.1	5.4	717	33.8	18.0	1.88	406
ESA C 150x250x68	648	114	10.1	9.0	544	33.8	30.0	1.13	244
ESA C 150x250x84	450	82	10.1	12.6	346	33.8	42.0	0.80	174
ESA C 150x300x52	1067	258	12.2	5.4	926	40.5	18.0	2.25	552
ESA C 150x300x68	836	155	12.2	9.0	702	40.5	30.0	1.35	331
ESA C 150x300x84	581	111	12.2	12.6	447	40.5	42.0	0.96	236
ESA C 200x250x55	1096	315	13.5	6.3	990	45.0	21.0	2.14	497
ESA C 200x250x73	1062	189	13.5	10.5	915	45.0	35.0	1.29	298
ESA C 200x250x91	740	135	13.5	14.7	590	45.0	49.0	0.92	213
ESA C 200x300x55	1370	437	16.2	6.3	1260	54.0	21.0	2.57	689
ESA C 200x300x73	1340	263	16.2	10.5	1150	54.0	35.0	1.54	414
ESA C 200x300x91	960	188	16.2	14.7	780	54.0	49.0	1.10	295
ESA C 200x350x57	1785	568	18.9	6.3	1616	63.0	21.0	3.00	896
ESA C 200x350x77	1730	341	18.9	10.5	1494	63.0	35.0	1.80	538
ESA C 200x350x97	1207	244	18.9	14.7	971	63.0	49.0	1.29	384
ESA C 200x400x57	2146	706	21.6	6.3	1943	72.0	21.0	3.43	1114
ESA C 200x400x77	2080	424	21.6	10.5	1796	72.0	35.0	2.06	668
ESA C 200x400x97	1451	303	21.6	14.7	1167	72.0	49.0	1.47	477
ESA C 250x300x60	1728	611	20.3	7.2	1619	67.5	24.0	2.81	763
ESA C 250x300x82	1888	367	20.3	12.0	1585	67.5	40.0	1.69	458
ESA C 250x300x104	1366	262	20.3	16.8	1126	67.5	56.0	1.21	327
ESA C 250x400x60	2630	1014	27.0	7.2	2464	90.0	24.0	3.75	1267
ESA C 250x400x82	2870	609	27.0	12.0	2411	90.0	40.0	2.25	760
ESA C 250x400x104	2878	435	27.0	16.8	1713	90.0	56.0	1.61	543

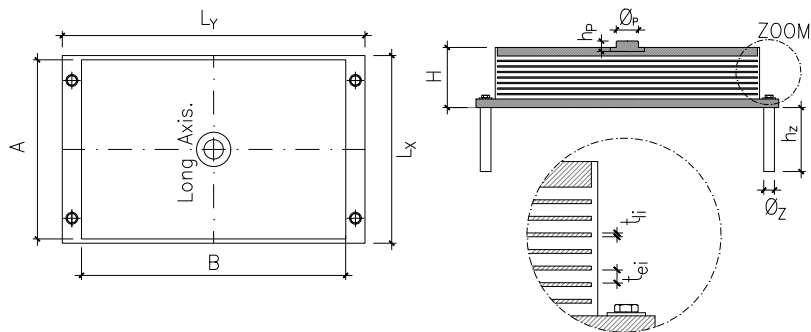
COMBO 1 - Rubber Deformation: $\gamma=0.3$ COMBO 2 - Rubber Deformation: $\gamma=1$

F_{zd}	maximum vertical load	t_{ei}	thickness of internal rubber layers
F_{zmin}	minimum vertical load	t_{li}	thickness of internal steel plates
F_{xyd}	horizontal load	L_x	longitudinal dimension of bottom steel plate
S_{eq}	displacement	L_y	transversal dimension of bottom steel plate
K_H	horizontal stiffness	Ø_p	diameter of the pin
K_V	vertical stiffness	h_p	height of the pin
A	longitudinal dimension of rubber pad	n_z	number of bottom anchorages
B	transversal dimension of rubber pad	Ø_z	diameter of bottom anchorages
H	height of the bearing	h_p	length of bottom anchorages
n_{ei}	number of internal rubber layers	W	weight

Dimensional data													Weight
A [mm]	B [mm]	H [mm]	n _{ei} [-]	t _{ei} [mm]	t _{li} [mm]	L _x [mm]	L _y [mm]	Ø _p [mm]	h _p [mm]	n _z [-]	Ø _z [mm]	h _z [mm]	W [Kg]
100	150	49	3	5	2	120	260	30	13	2	20	100	6.9
100	150	63	5	5	2	120	260	30	13	2	20	100	7.5
100	150	77	7	5	2	120	260	30	13	2	20	100	8.1
100	200	49	3	5	2	120	310	30	13	2	20	100	8.4
100	200	63	5	5	2	120	310	30	13	2	20	100	9.2
100	200	77	7	5	2	120	310	30	13	2	20	100	9.9
150	200	52	3	6	2	170	310	30	13	2	20	100	11.9
150	200	68	5	6	2	170	310	30	13	2	20	100	13.2
150	200	84	7	6	2	170	310	30	13	2	20	100	14.5
150	250	52	3	6	2	170	360	30	13	2	20	100	14.1
150	250	68	5	6	2	170	360	30	13	2	20	100	15.7
150	250	84	7	6	2	170	360	30	13	2	20	100	17.3
150	300	52	3	6	2	170	410	30	13	2	20	100	16.3
150	300	68	5	6	2	170	410	30	13	2	20	100	18.3
150	300	84	7	6	2	170	410	30	13	2	20	100	20.2
200	250	55	3	7	2	220	360	30	13	2	20	100	18.8
200	250	73	5	7	2	220	360	30	13	2	20	100	21.5
200	250	91	7	7	2	220	360	30	13	2	20	100	24.1
200	300	55	3	7	2	220	410	30	13	2	20	100	21.9
200	300	73	5	7	2	220	410	30	13	2	20	100	25.1
200	300	91	7	7	2	220	410	30	13	2	20	100	28.3
200	350	57	3	7	3	220	460	30	13	2	20	100	24.9
200	350	77	5	7	3	220	460	30	13	2	20	100	28.7
200	350	97	7	7	3	220	460	30	13	2	20	100	32.4
200	400	57	3	7	3	220	510	30	13	2	20	100	28.0
200	400	77	5	7	3	220	510	30	13	2	20	100	32.4
200	400	97	7	7	3	220	510	30	13	2	20	100	36.5
250	300	60	3	8	3	270	420	40	13	2	30	150	29.4
250	300	82	5	8	3	270	420	40	13	2	30	150	34.1
250	300	104	7	8	3	270	420	40	13	2	30	150	38.9
250	400	60	3	8	3	270	520	40	13	2	30	150	37.2
250	400	82	5	8	3	270	520	40	13	2	30	150	43.6
250	400	104	7	8	3	270	520	40	13	2	30	150	50.0

ESAFLON BEARINGS

TYPE C



	COMBO 1: Maximum vertical load				COMBO 2: Maximum displacement			Stiffness	
ID	F _{zd} [kN]	F _{Z, min} [kN]	F _{xyd} [kN]	S _{eq} [±mm]	F _{zd} [kN]	F _{xyd} [kN]	S _{eq} [±mm]	K _H [kN/mm]	K _V [kN/mm]
ESA C 250x500x60	3583	1457	33.8	7.2	3356	112.5	24	4.69	1820
ESA C 250x500x82	3606	874	33.8	12	3163	112.5	40	2.81	1092
ESA C 250x500x104	2831	625	33.8	16.8	2334	112.5	56	2.01	780
ESA C 300x400x75	3029	1306	32.4	8.1	2919	108	27	4	1350
ESA C 300x400x101	3384	783	32.4	13.5	2903	108	45	2.4	810
ESA C 300x400x127	2698	560	32.4	18.9	2259	108	63	1.71	579
ESA C 300x500x75	4168	1906	40.5	8.1	4018	135	27	5	1972
ESA C 300x500x101	4658	1143	40.5	13.5	3995	135	45	3	1183
ESA C 300x500x127	3713	817	40.5	18.9	3109	135	63	2.14	845
ESA C 300x600x75	5356	2548	48.6	8.1	5163	162	27	6	2635
ESA C 300x600x101	5986	1529	48.6	13.5	5134	162	45	3.6	1581
ESA C 300x600x127	4771	1092	48.6	18.9	3995	162	63	2.57	1129
ESA C 350x500x78	4661	2326	47.3	9	4607	157.5	30	5.25	2052
ESA C 350x500x106	5316	1396	47.3	15	4639	157.5	50	3.15	1231
ESA C 350x500x134	4571	997	47.3	21	3869	157.5	70	2.25	879
ESA C 350x600x78	6032	3144	56.7	9	5961	189	30	6.3	2774
ESA C 350x600x106	6602	1887	56.7	15	5891	189	50	3.78	1664
ESA C 350x600x134	5915	1348	56.7	21	5006	189	70	2.7	1189
ESA C 350x700x78	7449	4005	66.2	9	7361	220.5	30	7.35	3533
ESA C 350x700x106	7721	2403	66.2	15	6889	220.5	50	4.41	2120
ESA C 350x700x134	7305	1717	66.2	21	6183	220.5	70	3.15	1514
ESA C 400x500x92	5790	2605	54	12	5641	180	40	4.5	2003
ESA C 400x500x120	6276	1736	54	18	5567	180	60	3	1335
ESA C 400x500x148	5695	1303	54	24	4824	180	80	2.25	1002
ESA C 400x600x92	7538	3541	64.8	12	7110	216	40	5.4	2723
ESA C 400x600x120	7757	2361	64.8	18	6703	216	60	3.6	1815
ESA C 400x600x148	7415	1771	64.8	24	6280	216	80	2.7	1362
ESA C 400x700x92	8980	4528	75.6	12	8315	252	40	6.3	3483
ESA C 400x700x120	8838	3019	75.6	18	7840	252	60	4.2	2322
ESA C 400x700x148	8695	2264	75.6	24	7365	252	80	3.15	1741
ESA C 450x600x99	8135	3946	72.9	13.2	8029	243	44	5.52	2690
ESA C 450x600x131	9145	2631	72.9	19.8	8089	243	66	3.68	1793
ESA C 450x600x163	8386	1973	72.9	26.4	7137	243	88	2.76	1345

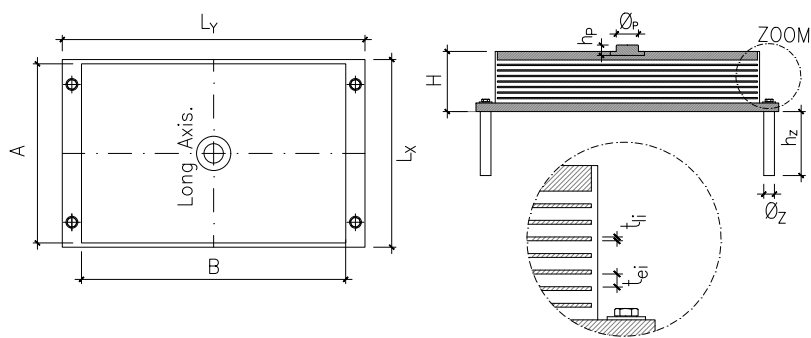
COMBO 1 - Rubber Deformation: $\gamma=0.3$ COMBO 2 - Rubber Deformation: $\gamma=1$

F_{zd}	maximum vertical load	t_{ei}	thickness of internal rubber layers
F_{zmin}	minimum vertical load	t_{li}	thickness of internal steel plates
F_{xyd}	horizontal load	L_x	longitudinal dimension of bottom steel plate
S_{eq}	displacement	L_y	transversal dimension of bottom steel plate
K_H	horizontal stiffness	Ø_p	diameter of the pin
K_V	vertical stiffness	h_p	height of the pin
A	longitudinal dimension of rubber pad	n_z	number of bottom anchorages
B	transversal dimension of rubber pad	Ø_z	diameter of bottom anchorages
H	height of the bearing	h_p	length of bottom anchorages
n_{ei}	number of internal rubber layers	W	weight

Dimensional data													Weight
A [mm]	B [mm]	H [mm]	n _{ei} [-]	t _{ei} [mm]	t _{li} [mm]	L _x [mm]	L _y [mm]	Ø _p [mm]	h _p [mm]	n _z [-]	Ø _z [mm]	h _z [mm]	W [Kg]
250	500	60	3	8	3	270	620	40	13	2	30	150	45.1
250	500	82	5	8	3	270	620	40	13	2	30	150	53.1
250	500	104	7	8	3	270	620	40	13	2	30	150	61.1
300	400	75	3	9	4	320	520	40	18	2	30	150	57.3
300	400	101	5	9	4	320	520	40	18	2	30	150	67.1
300	400	127	7	9	4	320	520	40	18	2	30	150	76.9
300	500	75	3	9	4	320	620	40	18	2	30	150	69.7
300	500	101	5	9	4	320	620	40	18	2	30	150	82
300	500	127	7	9	4	320	620	40	18	2	30	150	94.2
300	600	75	3	9	4	320	720	40	18	2	30	150	82.1
300	600	101	5	9	4	320	720	40	18	2	30	150	96.8
300	600	127	7	9	4	320	720	40	18	2	30	150	111.5
350	500	78	3	10	4	370	650	60	18	2	40	160	85.1
350	500	106	5	10	4	370	650	60	18	2	40	160	99.9
350	500	134	7	10	4	370	650	60	18	2	40	160	114.6
350	600	78	3	10	4	370	750	60	18	2	40	160	99.7
350	600	106	5	10	4	370	750	60	18	2	40	160	117.4
350	600	134	7	10	4	370	750	60	18	2	40	160	135.1
350	700	78	3	10	4	370	850	60	18	2	40	160	114.2
350	700	106	5	10	4	370	850	60	18	2	40	160	134.9
350	700	134	7	10	4	370	850	60	18	2	40	160	155.6
400	500	92	4	10	4	420	650	60	18	2	40	160	104.9
400	500	120	6	10	4	420	650	60	18	2	40	160	121.8
400	500	148	8	10	4	420	650	60	18	2	40	160	138.7
400	600	92	4	10	4	420	750	60	18	2	40	160	123.3
400	600	120	6	10	4	420	750	60	18	2	40	160	143.6
400	600	148	8	10	4	420	750	60	18	2	40	160	163.9
400	700	92	4	10	4	420	850	60	18	2	40	160	141.6
400	700	120	6	10	4	420	850	60	18	2	40	160	165.3
400	700	148	8	10	4	420	850	60	18	2	40	160	189
450	600	99	4	11	5	470	750	60	18	2	40	160	145.5
450	600	131	6	11	5	470	750	60	18	2	40	160	173.1
450	600	163	8	11	5	470	750	60	18	2	40	160	200.7

ESAFLON BEARINGS

TYPE C



ID	COMBO 1: Maximum vertical load				COMBO 2: Maximum displacement			Stiffness	
	F _{zd} [kN]	F _{z, min} [kN]	F _{xyd} [kN]	S _{eq} [±mm]	F _{zd} [kN]	F _{xyd} [kN]	S _{eq} [±mm]	K _H [kN/mm]	K _V [kN/mm]
ESA C 450x700x99	10141	5086	85.1	13.2	10010	283.5	44	6.44	3467
ESA C 450x700x131	11344	3391	85.1	19.8	10084	283.5	66	4.3	2312
ESA C 450x700x163	10455	2543	85.1	26.4	8898	283.5	88	3.22	1734
ESA C 450x800x99	12231	6275	97.2	13.2	12055	324	44	7.36	4278
ESA C 450x800x131	12988	4183	97.2	19.8	11560	324	66	4.91	2852
ESA C 450x800x163	12591	3138	97.2	26.4	10716	324	88	3.68	2139
ESA C 500x600x103	8667	4303	81	14.4	8652	270	48	5.63	2634
ESA C 500x600x137	9821	2869	81	21.6	8755	270	72	3.75	1756
ESA C 500x600x171	9294	2152	81	28.8	7940	270	96	2.81	1317
ESA C 500x700x103	10850	5588	94.5	14.4	10831	315	48	6.56	3421
ESA C 500x700x137	11592	3725	94.5	21.6	10344	315	72	4.38	2280
ESA C 500x700x171	11413	2794	94.5	28.8	9750	315	96	3.28	1710
ESA C 500x800x103	13112	6935	108	14.4	12524	360	48	7.5	4246
ESA C 500x800x137	13272	4623	108	21.6	11843	360	72	5	2830
ESA C 500x800x171	13068	3468	108	28.8	11163	360	96	3.75	2123
ESA C 600x800x135	14510	6460	129.6	21	13260	432	70	6.17	3285
ESA C 600x800x173	14510	4614	129.6	29.4	12540	432	98	4.41	2346
ESA C 600x800x211	14080	3589	129.6	37.8	11830	432	126	3.43	1825
ESA C 600x1000x135	18180	9246	162	21	16610	540	70	7.71	4702
ESA C 600x1000x173	17910	6605	162	29.4	15720	540	98	5.51	3358
ESA C 600x1000x211	17630	5137	162	37.8	14820	540	126	4.29	2612
ESA C 700x900x145	16740	8800	170.1	24	15330	567	80	7.09	3826
ESA C 700x900x187	16500	6286	170.1	33.6	14520	567	112	5.06	2733
ESA C 700x900x229	16260	4889	170.1	43.2	13720	567	144	3.94	2126
ESA C 700x1100x145	20500	12185	207.9	24	18750	693	80	8.66	5298
ESA C 700x1100x187	20200	8704	207.9	33.6	17750	693	112	6.19	3784
ESA C 700x1100x229	19900	6770	207.9	43.2	16800	693	144	4.81	2943
ESA C 800x1000x165	18950	11489	216	27	17350	720	90	8	4363
ESA C 800x1000x211	18680	8207	216	37.8	16500	720	126	5.71	3116
ESA C 800x1000x257	18400	6383	216	48.6	15600	720	162	4.44	2424
ESA C 800x1200x165	22750	15475	259.2	27	20900	864	90	9.6	5876
ESA C 800x1200x211	22450	11054	259.2	37.8	19800	864	126	6.86	4197
ESA C 800x1200x257	22100	8597	259.2	48.6	18750	864	162	5.33	3265

COMBO 1 - Rubber Deformation: $\gamma=0.3$ COMBO 2 - Rubber Deformation: $\gamma=1$

F_{zd}	maximum vertical load	t_{ei}	thickness of internal rubber layers
F_{zmin}	minimum vertical load	t_{li}	thickness of internal steel plates
F_{xyd}	horizontal load	L_x	longitudinal dimension of bottom steel plate
S_{eq}	displacement	L_y	transversal dimension of bottom steel plate
K_H	horizontal stiffness	Ø_p	diameter of the pin
K_V	vertical stiffness	h_p	height of the pin
A	longitudinal dimension of rubber pad	n_z	number of bottom anchorages
B	transversal dimension of rubber pad	Ø_z	diameter of bottom anchorages
H	height of the bearing	h_p	length of bottom anchorages
n_{ei}	number of internal rubber layers	W	weight

Dimensional data													Weight
A [mm]	B [mm]	H [mm]	n _{ei} [-]	t _{ei} [mm]	t _{li} [mm]	L _x [mm]	L _y [mm]	Ø _p [mm]	h _p [mm]	n _z [-]	Ø _z [mm]	h _z [mm]	W [Kg]
450	700	99	4	11	5	470	850	60	18	2	40	160	167.3
450	700	131	6	11	5	470	850	60	18	2	40	160	199.6
450	700	163	8	11	5	470	850	60	18	2	40	160	231.9
450	800	99	4	11	5	470	950	60	18	2	40	160	189.2
450	800	131	6	11	5	470	950	60	18	2	40	160	226.1
450	800	163	8	11	5	470	950	60	18	2	40	160	263.1
500	600	103	4	12	5	520	750	60	18	2	40	160	162.5
500	600	137	6	12	5	520	750	60	18	2	40	160	194
500	600	171	8	12	5	520	750	60	18	2	40	160	225.4
500	700	103	4	12	5	520	850	60	18	2	40	160	187
500	700	137	6	12	5	520	850	60	18	2	40	160	223.8
500	700	171	8	12	5	520	850	60	18	2	40	160	260.5
500	800	103	4	12	5	520	950	60	18	2	40	160	211.5
500	800	137	6	12	5	520	950	60	18	2	40	160	253.6
500	800	171	8	12	5	520	950	60	18	2	40	160	295.7
600	800	135	5	14	5	750	820	80	23	4	40	160	317
600	800	173	7	14	5	750	820	80	23	4	40	160	370
600	800	211	9	14	5	750	820	80	23	4	40	160	423
600	1000	135	5	14	5	750	1020	80	23	4	40	160	394
600	1000	173	7	14	5	750	1020	80	23	4	40	160	459
600	1000	211	9	14	5	750	1020	80	23	4	40	160	526
700	900	145	5	16	5	850	920	80	23	4	40	160	416
700	900	187	7	16	5	850	920	80	23	4	40	160	489
700	900	229	9	16	5	850	920	80	23	4	40	160	562
700	1100	145	5	16	5	850	1120	80	23	4	40	160	508
700	1100	187	7	16	5	850	1120	80	23	4	40	160	597
700	1100	229	9	16	5	850	1120	80	23	4	40	160	686
800	1000	165	5	18	5	1000	1020	100	28	4	50	200	619
800	1000	211	7	18	5	1000	1020	100	28	4	50	200	716
800	1000	257	9	18	5	1000	1020	100	28	4	50	200	813
800	1200	165	5	18	5	1000	1220	100	28	4	50	200	741
800	1200	211	7	18	5	1000	1220	100	28	4	50	200	856
800	1200	257	9	18	5	1000	1220	100	28	4	50	200	972

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