DISSIPATIVE STEEL BRACES
HBF

The HBFs are Nonlinear Devices (NLD) to be inserted into new or existing bracing systems to give them dissipative behavior.

DISSIPATIVE STEEL BRACES HBF

Dissipative bracings are mainly used for the seismic retrofitting of existing buildings. This passive protection method enhances the structure's resistance and stiffness. It involves adding braces to the structural frame, which terminate in a plate with specific hysteretic behaviour and dissipative capacity. This plate, known as HBF, allows for small axial displacements, dissipating energy through material yielding.

This type of retrofit is generally non-invasive as the elements are placed within the frame meshes. HBF can be left exposed or covered by panels. Replacement after a seismic event is simple and cost-effective; it will suffice to leave an access in the wall and replace only the dissipative element, without further interventions on the structure or the bracing.

The device consists of a single plate, or a pair of plates connected to one end of the brace. These plates are designed and manufactured to appropriately concentrate inelastic deformations in specific areas, effectively dissipating energy. The HBFs are made of S355J2 steel, compliant with EN 10025, and the anti-corrosive protection is achieved through hot-dip galvanization.

KEY TO LABEL

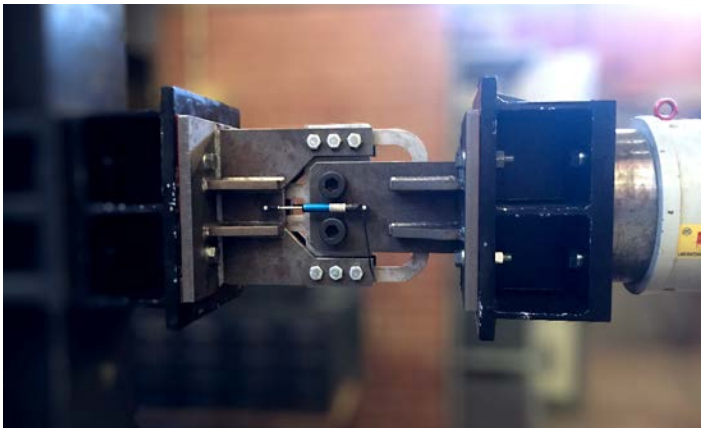
HBF 160/40

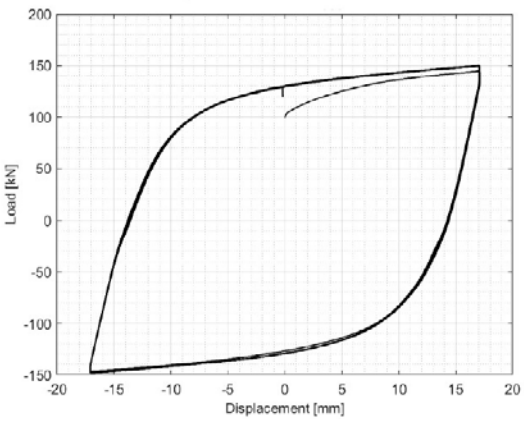
Device with 160 kN of ultimate load at +/- 20 mm of ultimate displacement

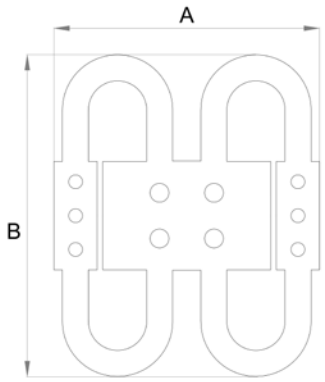
SOMMA CE	DISPOSITIVE TYPE	YEAR	JOB
2204-CPR-0978.1	DISPOSITIVE CODE	ORDER	SERIAL NUMBER

RANK	F_1 [kN]	d_1 [mm]
	F_2 [kN]	d_2 [mm]

CE HBF devices are CE marked according to EN 15129







DIMENSIONS AND PERFORMANCE CHARACTERISTICS

F_1 yielding strength
K_e equivalent stiffness
d_1 yielding displacement
F_2 ultimate strength
d_2 ultimate displacement
F_y first yield strength
d_y first yield displacement
n number of elastoplastic elements
A transversal dimension
B axial dimension

ID	F_1 [kN]	K_e [kN/mm]	d_1 [mm]	F_2 [kN]	d_2 [mm]	F_y [kN]	d_y [mm]	n [-]	A [mm]	B [mm]
HBF 160/30	158	206	0.77	159	15	55	0.61	1	320	355
HBF 195/30	191	223	0.86	195	15	76	0.62	1	330	365
HBF 300/30	299	341	0.88	300	15	61	0.45	1	365	410
HBF 345/30	342	451	0.76	345	15	75	0.47	1	380	430
HBF 390/30	385	462	0.83	390	15	84	0.51	1	380	440
HBF 440/30	436	528	0.83	440	15	99	0.53	1	400	435
HBF 480/30	477	468	1.02	480	15	161	0.51	1	420	475
HBF 600/30	598	681	0.88	600	15	122	0.45	2	385	420
HBF 690/30	684	903	0.76	690	15	150	0.47	2	400	475
HBF 780/30	770	925	0.83	780	15	168	0.51	2	420	480
HBF 880/30	872	1057	0.83	880	15	198	0.53	2	425	475
HBF 960/30	954	935	1.02	960	15	322	0.51	2	430	495
HBF 160/40	158	154	1.02	159	20	55	0.81	1	320	380
HBF 195/40	191	168	1.14	195	20	76	0.83	1	330	395
HBF 300/40	299	256	1.17	300	20	61	0.60	1	365	440
HBF 345/40	342	339	1.01	345	20	75	0.63	1	380	460
HBF 390/40	385	347	1.11	390	20	84	0.68	1	380	470
HBF 440/40	436	396	1.10	440	20	99	0.70	1	400	470
HBF 480/40	477	351	1.36	480	20	161	0.68	1	420	510
HBF 600/40	598	511	1.17	600	20	122	0.60	2	385	450
HBF 690/40	684	677	1.01	690	20	150	0.63	2	400	505
HBF 780/40	770	694	1.11	780	20	168	0.68	2	420	510
HBF 880/40	872	793	1.10	880	20	198	0.70	2	425	510
HBF 960/40	954	701	1.36	960	20	322	0.68	2	430	530

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