

Fire Protection

These products are not FM Approved, except where separately listed for a specific end use application in the Approval Guide.

The products listed in this section have been evaluated according to recognized test standards. Products are also listed under a category entitled "Identified Components." These are not complete end-products, but are critical components of an FM Approved or specification-tested finished material or device.

All listed products have been subjected to examinations and follow-up inspections by FM Approvals. These products are not FM Approved, except where separately listed for a specific end use application in the Approval Guide. Periodic audit inspections of the manufacturing facilities and quality control procedures are performed on all listed products. In addition, the products may be re-examined to reconfirm the previous test results and to assess any changes in manufacturing procedures or composition of the product.

The manufacturer of the listed product or material is authorized to apply an identification marking to the product or container which includes the FM Approvals name and the FM Approvals test report identification.

FM Approvals does not imply or express any warranty of any kind with respect to the products, nor assume any responsibility for defects, failure in service or patent infringements.

FM Approvals makes no judgement of product suitability for its intended end use solely as a result of these tests.

Seismic Sway Brace Components

These products are not FM Approved, except where separately listed for a specific end use application in the Approval Guide.

Seismic Sway Braces are used to resist the differential movement between the sprinkler piping systems and the structure to which it is attached during an earthquake. The listings contained within this section are based on testing that was conducted on the building-attached and piping-attached components individually. While included in the certification testing, the component used between the building-attached component and the pipe-attached component was not within the scope of Approval.

Two or more listed components may be required to form a complete seismic sway brace. The specific components required depend upon the type of building construction and the pipe size.

Models CSB, CSBS, CSBU – ANSI/FM Approvals 1950

Testing was performed in accordance with the procedures discussed in ANSI/FM Approval 1950-2016, *American National Standard for Seismic Sway Braces for Pipe, Tubing and Conduit* paragraph 4.2

Testing for the CSBT was performed with some differences than the procedure in paragraph 4.2 The CSBT was tested with the brace pipe, the building attached component and pipe attached component included in one test and was tested with the brace pipe at an angle. Calculations used to derive the ratings below accounted for these differences.

In all cases, the allowable capacities shown within this section have been determined by resolving the load rating (i.e. the load resulting in failure or exceedance of the deformation limits) to the horizontal direction and dividing by a safety factor of 2.0 to allow the values to be used directly for Allowable Stress Design (ASD).

Piping Attached Products

Model	Part Description	Orientation	Run Pipe Nominal Size, in.	Run Pipe Reference	Horizontal Load Ratings lb (N) Installation Angle (a)				Remarks
					30° - 44°	45° - 59°	60° - 74°	75° - 90°	
CSB	Pipe Clamp	Lateral	1	LW, 10, 40	1120 (4980)	1580 (7020)	1940 (8620)	2170 (9650)	a, c, d, e
CSB	Pipe Clamp	Lateral	1-1/4, 1-1/2, 2	LW, 10, 40	1040 (4620)	1470 (6530)	1800 (8000)	2020 (8980)	a, c, d, e
CSB	Pipe Clamp	Lateral	2-1/2	LW, 10, 40	1080 (4800)	1520 (6760)	1870 (8310)	2090 (9290)	a, c, d, e
CSB	Pipe Clamp	Lateral	3, 4, 5	LW, 10, 40	1040 (4620)	1480 (6580)	1810 (8050)	2030 (9020)	a, c, d, e
CSB	Pipe Clamp	Lateral	6	LW, 10, 40	1090 (4840)	1540 (6850)	1890 (8400)	2120 (9430)	a, c, d, e
CSB	Pipe Clamp	Lateral	8,10	0.188, 40	990 (4400)	1410 (6270)	7690 (1730)	1930 (8580)	a, c, d

CSB	Pipe Clamp	Longitudinal	1, 1-1/4	LW, 10, 40	970 (4310)	930 (4130)	950 (4220)	1050 (4670)	a, c, d, e
CSB	Pipe Clamp	Longitudinal	1-1/2	LW, 10, 40	900 (4000)	1390 (6180)	1630 (7250)	1690 (7510)	a, c, d, e
CSB	Pipe Clamp	Longitudinal	2	LW, 10, 40	900 (4000)	1360 (6040)	1630 (7250)	1690 (7510)	a, c, d, e
CSB	Pipe Clamp	Longitudinal	2-1/2	LW, 10, 40	990 (4400)	1360 (6040)	1640 (7290)	1870 (8310)	a, c, d, e
CSB	Pipe Clamp	Longitudinal	3	LW, 10, 40	980 (4350)	1340 (5960)	1640 (7290)	1870 (8310)	a, c, d, e
CSB	Pipe Clamp	Longitudinal	4, 5	LW, 10, 40	980 (4350)	1340 (5960)	1640 (7290)	1970 (8760)	a, c, d, e
CSB	Pipe Clamp	Longitudinal	6	LW, 10, 40	1060 (4710)	1460 (6490)	1760 (720)	2010 (8940)	a, c, d
CSB	Pipe Clamp	Longitudinal	8,10	0.188, 40	910 (4040)	1250 (5560)	1760 (7820)	1980 (8800)	a, c, d, e

Structural Attached Products

Model	Part Description	Joist or Beam Thickness, in (mm)	Orientation	Horizontal Load Ratings lb (N) Installation Angle (a)				Remarks
				30° - 44°	45° - 59°	60° - 74°	75° - 90°	
CSBS1	Structure Attached	¼ - ¾ (6-19 mm)	Lateral	640 (2840)	1330 (5910)	208 (9250)	2130 (9470)	a
CSBS1	Structure Attached	¼ - ¾ (6-19 mm)	Longitudinal	520 (2310)	1070 (4750)	1510 (6710)	1800 (8000)	a
CSBS1A	Structure Attached	¼ - ¾ (6-19 mm)	Lateral	640 (2840)	1330 (5910)	208 (9250)	2130 (9470)	a
CSBS1A	Structure Attached	¼ - ¾ (6-19 mm)	Longitudinal	520 (2310)	1070 (4750)	1510 (6710)	1800 (8000)	a
CSBS2	Structure Attached	¾-1-1/4 (19-31 mm)	Lateral	790 (3510)	1610 (7160)	1930 (8580)	2150 (9560)	a
CSBS2	Structure Attached	¾-1-1/4 (19-31 mm)	Longitudinal	650 (2890)	1320 (5870)	1640 (7290)	2010 (8940)	a
CSBS3	Structure Attached	¼ - ¾ (6-19 mm) Width: 4-8.5 (100-215 mm)	Lateral	790 (3510)	1610 (7160)	1930 (8580)	2150 (9560)	a
CSBS3	Structure Attached	¼ - ¾ (6-19 mm) Width: 4-8.5 (100-215 mm)	Longitudinal	650 (2890)	1320 (5870)	1640 (7290)	2010 (8940)	a
CSBS4	Structure Attached	¼-3/4 (6-19 mm) Width: 4-14.5 (100-365 mm)	Lateral	820 (3640)	1660 (7380)	2120 (9430)	2210 (9830)	a
CSBS4	Structure Attached	¼-3/4 (6-19 mm) Width: 4-14.5 (100-365 mm)	Longitudinal	450 (2000)	970 (4310)	1460 (6490)	2250 (10000)	a
CSBS5	Structure Attached	¾-1-1/4 (19-31 mm) Width: 4-18 (100-455 mm)	Lateral	820 (3640)	1660 (7380)	2120 (9430)	2210 (9830)	a

CSBS5	Structure Attached	¾-1-1/4 (19-31 mm) Width: 4-18 (100-455 mm)	Longitudinal	450 (2000)	970 (4310)	1460 (6490)	2250 (10000)	a
CSBU1	Structure Attached	N/A	N/A	1270 (5640)	1660 (7380)	1990 (8850)	2320 (10310)	a
CSBU2	Structure Attached	N/A	N/A	1110 (4930)	1710 (7600)	2140 (9510)	2320 (10310)	a

Remarks:

- a. FM Approved when used with 1", 1-1/4", 1-1/2", or 2" (DN25, DN32, DN40, DN50) NPS Schedule 40, GB/T 3091, EN 10255 (Heavy), AS 1074 Heavy or JIS G3454 brace pipe.
- b. FM Approved when used with 1" and 1-1/4" (DN 25 and DN32) NPS Schedule 40, AS 1074 Heavy, GB/T 3091, EN 10255 (Heavy), or JIS G3454 brace pipe.
- c. Load ratings for Schd 40 above may also be applied to AS 1074 Heavy, GB/T 3091, EN 10255 (Heavy), and JIS G3454 pipe.
- d. Load ratings for Schd 10 above may also be applied to AS 1074 Medium, GB/T 3091, EN 10255 (Medium or Heavy), JIS G3452, FM Approved Thinwall, and Schd 40 pipes unless otherwise indicated.
- e. Load ratings for LW above refers to FM Approved Lightwall Pipe, commonly referred to as "Schedule 7". These ratings may also be applied to AS 1074 Lightwall, EN 10255 L, EN 10220, and GB/T 8163 pipe unless otherwise specified.
- f. Load ratings for "0.188 wall" above may be applied to any thicker walled pipe unless otherwise specified.

Company Name:	ERICO International Corporation
Company Address:	34600 Solon Rd, Solon, Ohio 44139, USA
Company Website:	http://erico.com
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