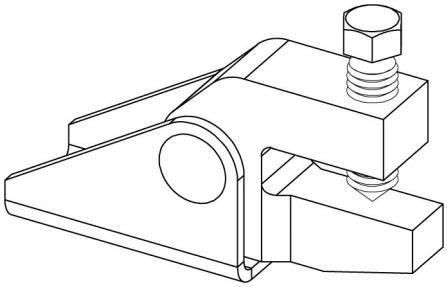
FIG. 030 C-CLAMP STRUCTURAL ATTACHMENT



c UL us LISTED FM APPROVED

Function: Designed for bracing pipe against sway and seismic disturbances. Universal swivel design allows for attachment at any surface angle combined with concentric loading. Structure attachment fitting designed to use 1" thru 2" SCH 40 pipe, structural steel, and PHD 12 gauge strut channel (1001 & 1201) as sway bracing elements. No bracing member thicker than $^{3}/_{8}$" can be used in conjunction with this product. Utilize the Fig. 030 with a PHD Manufacturing pipe attachment fitting and a bracing element to form a complete sway brace assembly. Sway brace assemblies are intended to be installed in accordance with NFPA 13 and the manufacturer's installation instructions.

Size: $^{1}/_{2}$" mounting hole. Braces up to 8" Pipe MAX

Material: Ductile iron and carbon steel

Finish: Electro-galvanized

Install: Mount device to structure then insert brace element into fitting against back of jaw. Tighten set screw finger tight, then tighten until hex head breaks off. Adjust attachment to proper brace angle.

Approvals: Underwriters Laboratories listed for US and Canada and Factory Mutual approved. Listed for use with NFPA fastener tables and PHD sway brace components only.

Ordering: Specify figure number.

UL Maximum Design Loads (Up to 8" Pipe) Lateral & Longitudinal Assemblies

Brace Member	Member Thickness	Member Length	lbs.	kN	Wt. Each	
					lbs.	kg
1" Thru 2" Pipe	SCH 40	Refer to NFPA13	2015	(8.96)	1.23	(0.56)
Structural Steel	$^{3}/_{8}$" thick MAX	Refer to NFPA13	2015	(8.96)	1.23	(0.56)
1001 Series Strut	12 Ga.	See Chart Below	2015	(8.96)	1.23	(0.56)
1201 Series Strut	12 Ga.	See Chart Below	2015	(8.96)	1.23	(0.56)

FM Maximum Design Load For Bracing SCH 10, 40 & Flow Pipe

Brace Member		Brace Angle From Vertical (Degrees)	lbs.	kN
1" Thru 2" SCH 40 Pipe	(GB/T3091, EN10255H, or JISG3454)	30°-44°	1270	(5.64)
		45°-59°	2040	(9.07)
		60°-74°	2450	(10.89)
		75°-90°	2740	(12.18)
$^{1}/_{4}$" Thru $^{3}/_{8}$" Thick Structural Steel		30°-44°	900	(4.00)
		45°-59°	1280	(5.69)
		60°-74°	1570	(6.98)
		75°-90°	1750	(7.78)
PHD 12 Gauge Strut Channel 1001 & 1201		30°-44°	1070	(4.75)
		45°-59°	1440	(6.40)
		60°-74°	1740	(7.73)
		75°-90°	1940	(8.62)

Strut Fig. #	PHD Strut Channel Maximum Horizontal Load 90° From Vertical														
	r		l/r =	100		lbs.	kN	200		lbs.	kN	300		lbs.	kN
				Max				Max				Max			
1001	0.580	(14.73)		58"	(1473.2)	4670	(20.77)	116"	(2946.4)	1165	(5.18)	174"	(4419.6)	518	(2.30)
1201	0.297	(7.54)		29"	(736.6)	3260	(14.50)	59"	(1498.6)	785	(3.49)	89"	(2260.6)	345	(1.53)

FIG. 031 Horizontal Prying Factors Per NFPA 13-2016

Brace Orientation*	A		B		C		D		E		F		G		H		I	
Brace Angle**	30° - 44°		45° - 59°		60° - 90°		30° - 44°		45° - 59°		60° - 90°		30° - 44°		45° - 59°		60° - 90°	
Prying Factor (Pr)	2.396	(60.85)	1.098	(27.90)	1.285	(32.64)	1.677	(42.60)	1.353	(34.36)	2.125	(53.98)	2.570	(65.28)	1.817	(46.16)	1.484	(37.69)

* Brace Orientation per NFPA 13-2016 Figure 9.3.5.12.1.

** Brace Pipe Angles are determined from vertical.

PHD Manufacturing, Inc.
44018 Columbiana-Waterford Road
Columbiana, Ohio 44408-9481
Phone: 800-321-2736 • 330-482-9256
Fax: 330-482-2763
Web: www.phd-mfg.com

FIG. 030 C-CLAMP STRUCTURAL ATTACHMENT

Pipe Braced: 8" Pipe MAX
Bracing: 1" thru 2" SCH 40 pipe, structural steel, and PHD 12 gauge strut channel (1001 & 1201)
Function: Designed for bracing pipe against sway and seismic disturbances. Universal swivel design allows for attachment at any surface angle combined with concentric loading. Structure attachment fitting designed to use 1" thru 2" SCH 40 pipe, structural steel, and PHD 12 gauge strut channel (1001 & 1201) as sway bracing elements. No bracing member thicker than 3/8" can be used in conjunction with this product. Utilize the Fig. 030 with a PHD Manufacturing pipe attachment fitting and a bracing element to form a complete sway brace assembly. Sway brace assemblies are intended to be installed in accordance with NFPA 13 and the manufacturer's installation instructions.
Approvals: Underwriters Laboratories listed for US and Canada
Factory Mutual approved
Listed for use with NFPA13 fastener tables and PHD sway brace components only
Material: Ductile Iron and Low Carbon Steel
Installation: Mount device to structure then insert brace element into fitting against back of jaw. Tighten set screw finger tight, then tighten until hex head breaks off. Adjust attachment to proper brace angle.

UL Maximum Design Loads (Up to 8" Pipe)			
Brace Member	Member Thickness	Member Length	lbs.
1" Thru 2" Pipe	SCH 40	Refer to NFPA13	2015
NFPA13 Structural Steel	3/8" thick MAX	Refer to NFPA13	2015
1001 Series Strut	12 Ga.	See Chart Below	2015
1201 Series Strut	12 Ga.	See Chart Below	2015

FM Maximum Design Load For Bracing SCH 10, 40 & Flow Pipe			
Brace Member		Brace Angle From Vertical (Degrees)	lbs.
1" Thru 2" SCH 40 Pipe	(GB/T3091, EN10255H, or JISG3454)	30°-44°	1270
		45°-59°	2040
		60°-74°	2450
		75°-90°	2740
1/4" Thru 3/8" Thick Structural Steel		30°-44°	900
		45°-59°	1280
		60°-74°	1570
		75°-90°	1750
PHD 12 Gauge Strut Channel 1001 & 1201		30°-44°	1070
		45°-59°	1440
		60°-74°	1740
		75°-90°	1940

Strut	Max. Horizontal Load (lbs.) 90° From Vertical							
Fig. #	r	l/r =	100		200		300	
1001	0.580		58"	4670	116"	1165	174"	518
1201	0.297		29"	3260	59"	785	89"	345

NOTE: Use NFPA13 table "Allowable Horizontal Load on Brace Assemblies Based on the Weakest Component of the Brace Assembly" reduction factors for maximum loads at varying angles.

Refer to www.phd-mfg.com regarding further strut channel details