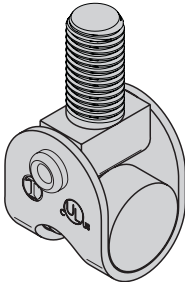


Fig. 75 Swivel Attachment

See page 89 for product information



SC228 Hanger Rod Stiffener

See page 91 for product information

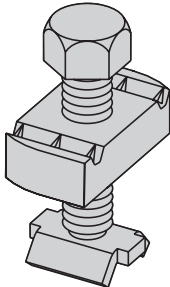


Fig. 98 Rod Stiffener

See page 91 for product information

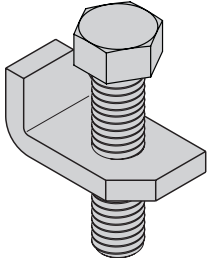


Fig. 98B Rod Stiffener with Break-Off Bolt Head

See page 91 for product information

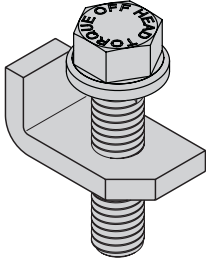


Fig. 69 Retaining Strap

See page 156 for product information

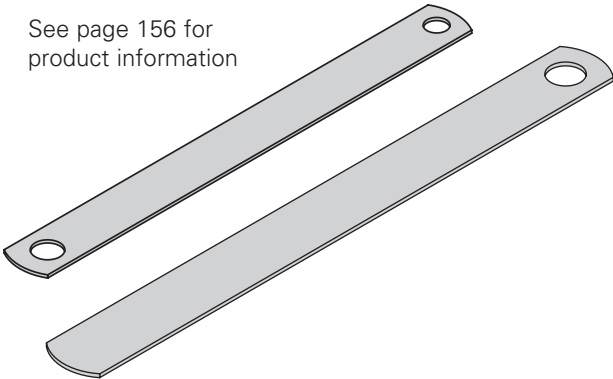


Fig. 69R Retrofit Retaining Strap

See page 156 for product information

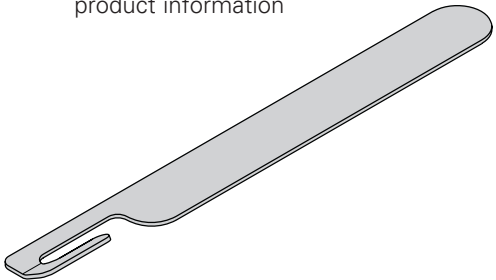


Fig. 65 Reversible Steel C-Type Beam Clamp - 3/4" (19.0mm) Throat Opening

See page 157 for product information

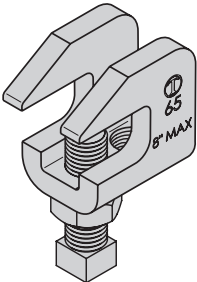


Fig. 65XT Reversible C-Type Beam Clamp

See page 157 for product information

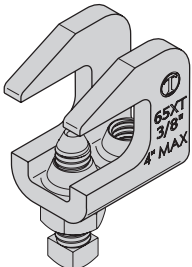
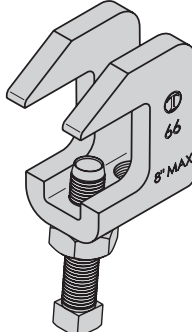


Fig. 66 Reversible Steel C-Type Beam Clamp - 1 1/4" (31.7mm) Throat Opening

See page 157 for product information



Reference page 106 for general fitting and standard finish specifications.

Miscellaneous seismic fittings

TOLCO Fig. 825 - bar joist sway brace attachment to steel

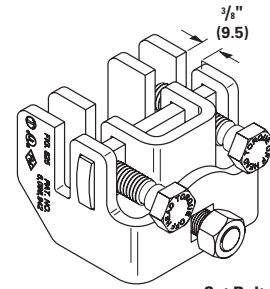


Size Range: Fits up to 3/8" (9.5mm) thick structural steel member. Accommodates all Fig. 900 Series sway brace attachments.

Material: Steel

Function: To attach sway brace assemblies and/or hanger assemblies to structural steel members.

Features: This product's design incorporates a concentric attachment point which is critical to the performance of structural seismic connections. NFPA 13 indicates the importance of concentric loading of connections and fasteners. Permits secure non-friction connection without drilling or welding. Unique design reinforces point of connection to joist. Break off head set bolt design assures verification of proper installation torque (min. 31 lbs-ft (42.1 N•m)).



Set Bolts & Hardware Included

Approvals: Underwriters Laboratories Listed in the USA and Canada (cULus). Approved by Factory Mutual Engineering (FM). Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

Installation: Fig. 825 is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment, to form a complete bracing assembly. NFPA 13, FM DS 2-8, and/or OSHPD guidelines should be followed.

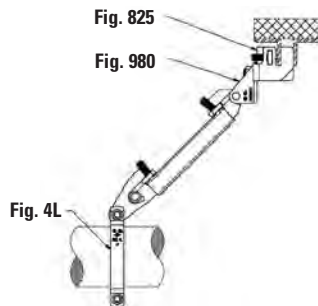
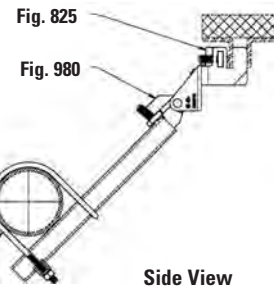
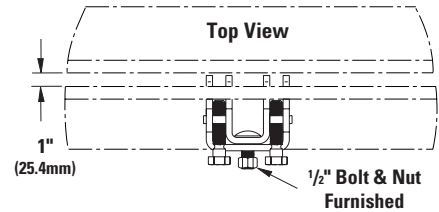
To Install: Place the Fig. 825 on the steel beam, tighten the cone point set bolts until heads break off. Attach other TOLCO transitional attachment fitting, Fig. 909, 910, 980, 986, or 990. Transitional fitting attachment can pivot for adjustment to proper brace angle.

Finish: Plain or Electro-Galvanized.

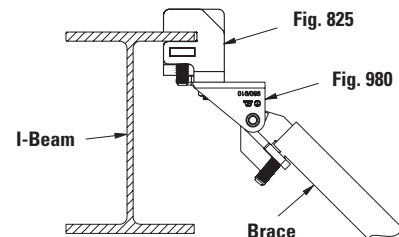
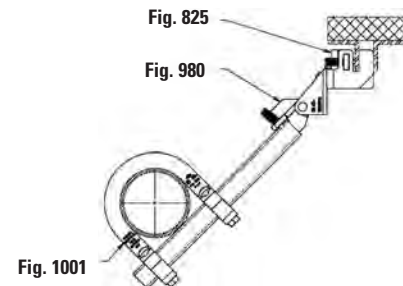
Weight: Approx. Wt./100 - 247.5 lbs. (112.2kg)

Order By: Figure number and finish
 US Patent #6,098,942,
 Canada Patent #2,286,659

Note: Retaining strap not required



UL Listed as Hanger Attachment for 6" (150mm) pipe at Maximum Spacing



Maximum Design Load	
825W/909-1370 lbs	(5.78 kN)
825W/910-1500 lbs	(7.11 kN)
825W/980-1600 lbs	(8.45 kN)

		Max. Horizontal Design Loads (FM)			
		30° - 44° lbf / (kN)	45° - 59° lbf / (kN)	60° - 74° lbf / (kN)	75° - 90° lbf / (kN)
Maximum 3/8" Thick Flange	Perpendicular to Structural Member	990 (4.40)	1360 (6.05)	1670 (7.43)	1860 (8.27)
Maximum 3/8" Thick Flange	Parallel to Structural Member	460 (2.04)	630 (2.80)	770 (3.42)	860 (3.82)

FM Approved design loads are based on ASD design method.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

Reference page 106 for general fitting and standard finish specifications.

TOLCO Fig. 825A - Bar Joist Sway Brace Attachment

Size Range: One size accommodates all Fig. 900 Series sway brace attachments. Maximum Horizontal Design Load 1600 lbs (7.11kN).

Material: Steel

Function: To attach sway bracing to steel open web structural members.

Features: This product's design incorporates a concentric attachment point which is critical to the performance of structural seismic connections. NFPA 13 indicates the importance of concentric loading of connections and fasteners. Permits secure non-friction connection without drilling or welding. Unique design reinforces point of connection to joist. Break off head bolt design assures verification of proper installation.

Approvals: Underwriters Laboratories Listed in the USA (**UL**) and Canada (**cUL**). For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

Installation Instructions: Fig. 825A is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly. NFPA 13 and/or OSHPD guidelines should be followed.

To Install: Place the Fig. 825A on the steel beam, tighten the cone point set screws until heads break off. Attach other TOLCO transitional attachment fitting, Fig. 909, 910, 980 or 986. Transitional fitting attachment can pivot for adjustment to proper brace angle.

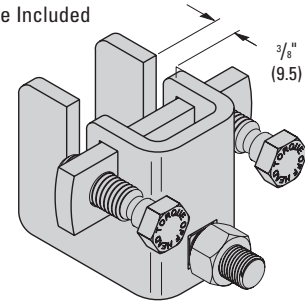
Finish: Plain or Electro-Galvanized

Approx. Wt./100: 154.5 Lbs. (70.1kg)

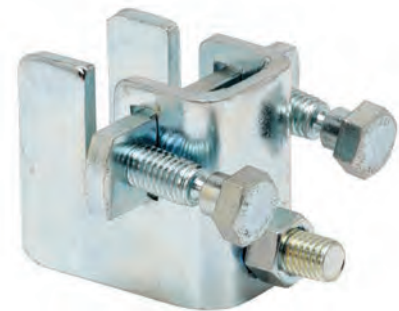
Order By: Figure number and finish
Patent #6,098,942



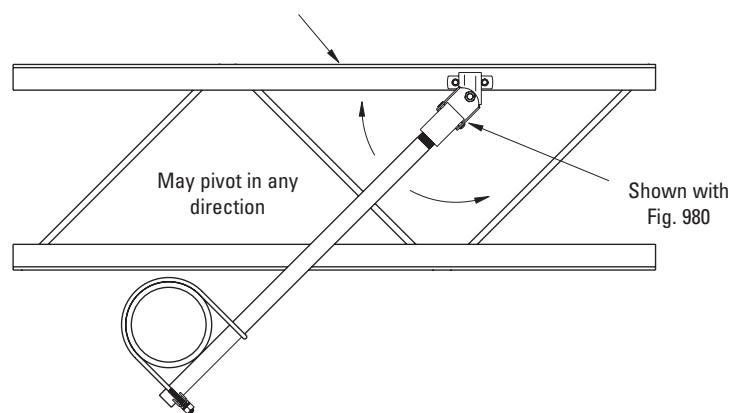
Set Screws & Hardware Included



**Maximum Design Load
1600 lbs.**



Bar joist shown attached to various roof materials



Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

Reference page 106 for general fitting and standard finish specifications.

Miscellaneous seismic fittings

TOLCO Fig. 828 - universal sway brace attachment to steel

Size Range: One size accommodates all Fig. 900 Series sway brace attachments. Fits from $\frac{3}{8}$ " (9.4mm) to $\frac{7}{8}$ " (22.2mm) thick steel structure. For thicknesses less than $\frac{3}{8}$ " (9.4mm) refer to Fig. 825 and Fig. 825A.

Material: Steel

Function: To attach sway bracing and/or hangers to various types of steel structural members.

Features: Permits secure non-friction connection without drilling or welding. Unique design allows offset placement on wide flange beam, C-channel, open web, welded steel trusses, etc. Secures brace to structure either across or along the beam. Break-off set bolts allow for visual verification of proper installation torque.

Approvals: Underwriters Laboratories Listed in the USA and Canada (cULus). Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13. For FM Approval information refer to FM Approved page 53.

Installation Instructions: The Fig. 828 is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Slide the Fig. 828 on the flange of the beam, truss, or girder. Be sure the attachment is fully engaged to the rear of the opening. Tighten the cone point set screws until the heads break off. Remove the flange nut from the carriage bolt. Install a TOLCO swivel fitting (Fig. 909, 910, 980, *986). Use flange nut to secure the swivel fitting.

*Not UL listed when used in combination with Fig. 986

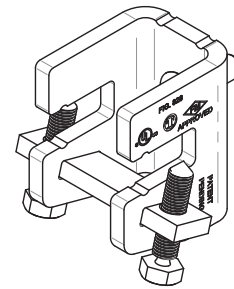
Finish: Plain or Electro-Galvanized

Approx. Weight/100: 341 Lbs. (154.7 kg)

Order By: Figure number and finish

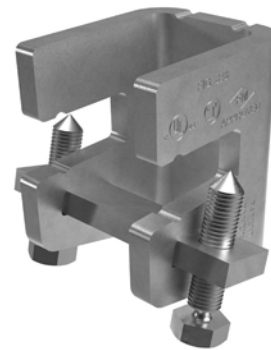
Patent Pending

Note: Retaining strap not required.



Set Screws and 1/2" Attachment Bolt and Nut Included

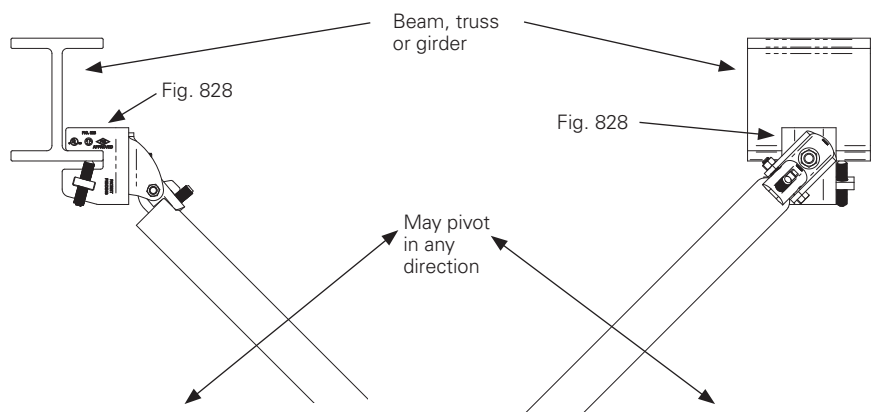
Flange thickness	Maximum UL Rated load
.375" - .499"	1090 lbs. (4.84kN)
.500" - .875"	1370 lbs. (6.09kN)



FM Approved Allowable Horizontal Load With Brace Perpendicular To Beam			
Brace Angle (degrees from vertical)			
30°-44°	45°-59°	60°-74°	75°-90°
980	2220	3340	4040
(4.350kN)	(9.780kN)	(14.850kN)	(17.970kN)

FM Approved Allowable Horizontal Load With Brace Parallel To Beam			
Brace Angle (degrees from vertical)			
30°-44°	45°-59°	60°-74°	75°-90°
820	1270	1490	1650
(3.640kN)	(5.640kN)	(6.620kN)	(7.330kN)

FM Approved design loads are based on ASD design method.



Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

TOLCO Fig. 980 - Universal swivel sway brace attachment - 3/8" to 3/4" mounting hardware

TOLCO Fig. 980H - Universal swivel sway brace attachment - 7/8" to 1 1/4" mounting hardware

Size Range: One size fits bracing pipe 1" (25mm) thru 2" (50mm), B-Line series 12 gauge (2.6mm) channel.

Material: Carbon steel

Function: Multi-functional attachment to structure or braced pipe fitting.

Features: This product's design incorporates a concentric attachment opening which is critical to the performance of structural seismic connections and in accordance with NFPA 13, 2019 Section 18.5.11.5. The Fig. 980 mounts to any surface angle and the break off bolt head assures verification of proper installation.

Installation: Fig.980 is the structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO™ "braced pipe" attachment, Fig. 1001, 2002, 3000, 4L or approved attachment to pipe to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Place the Fig. 980 onto the "bracing pipe". Tighten the set bolt until the head breaks off. Attachment can pivot for adjustment to proper brace angle.

Approvals: —Underwriters Laboratories Listed in the USA (UL) and Canada (cUL). UL Listed for the following brace member type pipes: Sch. 40, KSD 3562. Ask the factory for additional information as it may vary by product size. Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13. For FM Approval information refer to FM Approved page 61.

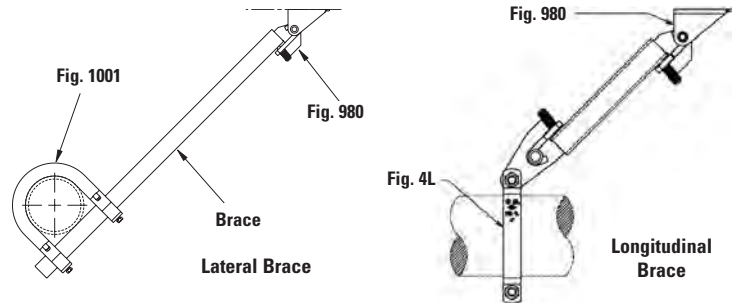
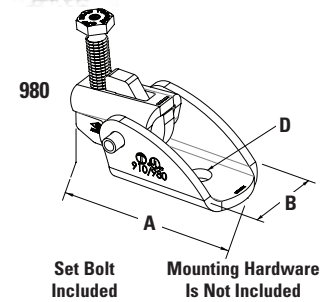
Note: Fig. 980 Swivel Attachment and Fig. 1001, 2002, 3000, 4L, or approved attachment to pipe make up a sway brace system of UL Listed attachments and bracing materials which satisfies the requirements of Underwriters Laboratories and the National Fire Protection Association (NFPA)

Finish: Plain, Electro-Galvanized or Stainless Steel.

Contact customer service for alternative finishes.

Order By: Figure number and finish.

Pat. #6,273,372, Pat. #6,517,030, Pat. #6,953,174,
Pat. #6,708,930, Pat. #7,191,987, Pat. #7,441,730,
Pat. #7,669,806



Catalog #	A		B		D**		Max. Design Load (cULus) lbs./ (kN)	Max. Design Load*** (FM)				Approx.Wt./100	
	in.	(mm)	in.	(mm)	in.	(mm)		30°-44° lbs./ (kN)	45°-59° lbs./ (kN)	60°-74° lbs./ (kN)	75°-90° lbs./ (kN)	lbs.	(kg)
980-3/8					7/16	(11.1)	1600 (7.12)					149	(67.6)
980-1/2	4 9/16	(114.9)	2 1/16	(52.4)	9/16	(14.3)	2100 (9.34)	2370	2790	3360	3750	148	(67.1)
980-5/8					11/16	(17.5)	2100 (9.34)	(10.54)	(12.41)	(14.94)	(16.68)	147	(66.7)
980-3/4					13/16	(20.6)	2100 (9.34)				146	(66.2)	
980H-7/8					15/16	(23.8)	Fig. 980H is not UL Listed or FM Approved					402	(182.3)
980H-1	6 3/4	(171.4)	3 1/2	(88.9)	1 1/16	(27.0)	Fig. 980H is not UL Listed or FM Approved	Fig. 980H is not UL Listed or FM Approved				400	(181.4)
980H-1 1/8					1 3/16	(30.2)	397					(180.1)	
980H-1 1/4					1 5/16	(33.3)	390					(176.9)	

* Sizes available in stainless steel (980S-3/8, 980S-1/2, 980S-5/8, and 980S-3/4) and have the same UL rating as what is listed.

** Mounting attachment hole size.

*** Installed with 1" or 1 1/4" schedule 40 brace pipe.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

Miscellaneous seismic fittings

TOLCO Fig. 981 - Fast attach – universal swivel sway brace attachment

Size Range: Fits bracing pipe 1" (25mm) thru 2" (50mm), 12 gauge (2.6mm) channel and all structural steel up to 1/4" (6.3mm) thick.

Fig. 981-S fits rod sizes 3/8" thru 5/8".

Fig. 981-L fits rod sizes 3/4" thru 7/8".

Material: Steel

Function: Multi-functional attachment to hanger rod, trapeze rod, structure or braced pipe fitting.

Features: Fits multiple sizes of bracing pipe, strut or structural steel. Swivel allows adjustment to various surface angles. Breakaway bolt heads assure verification of proper installation torque. Unique "fast attach" yoke design fits multiple rod sizes; 3/8" thru 5/8" and 3/4" thru 7/8". "Stackable" design allows installation of both lateral and longitudinal braces to be easily installed on a single hanger rod, with no disassembly.

Installation: Fig. 981 is the "braced pipe" attachment component of a lateral or longitudinal brace assembly. It is intended to be combined with the pipe hanger, all-thread rod, "bracing pipe" and TOLCO transitional and structural attachment component(s) to form a complete bracing assembly. NFPA 13 and or OSHPD guidelines should be followed.

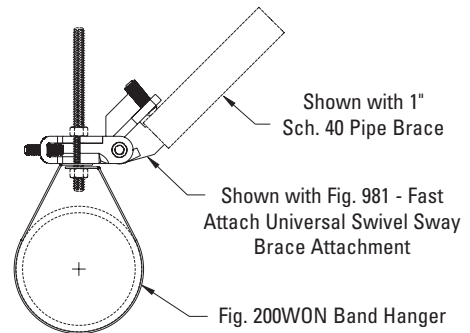
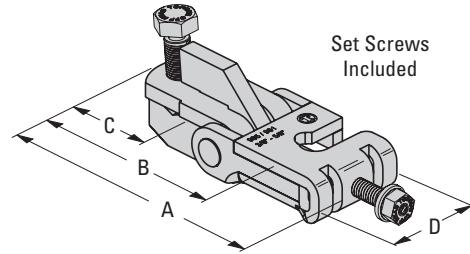
To Install: Spin nut on top of hanger counterclockwise to loosen the nut and raise it above the top of the hanger. Attach Fig. 981 by slipping the open side of the 981 yoke onto the all thread rod above the top of the hanger. Tighten 3/8" cone point set screw on yoke until head breaks-off to ensure proper installation torque. Spin the hex nut clockwise and tighten securely. Insert brace pipe into the jaw of the 981 and tighten the cone point set screw until the head breaks off ensuring proper installation torque. Pivot brace pipe to proper angle and attach to structure using a TOLCO swivel structural attachment.

Finish: Electro-Galvanized

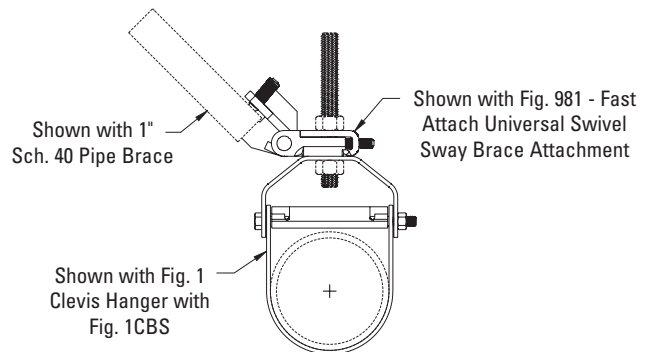
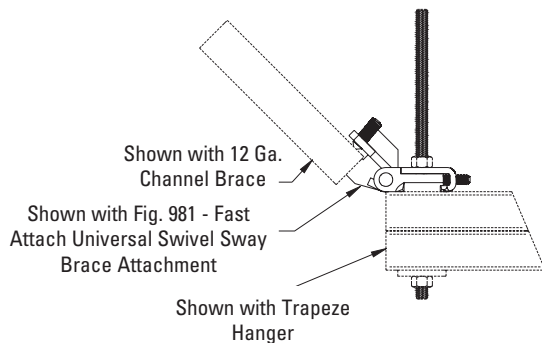
Order By: Figure number, rod size

US Patent Numbers

Pat. #6,273,372, Pat. #7,097,141, Pat. #7,654,043, Pat. #7,654,043 B2



Part Number	Rod Size Range	A		B		C		D		Max. Horizontal Design Load lbs. (kN)	Approx. Wt./100 lbs. (kg)
		in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)		
981-S	3/8" thru 5/8"	5 1/8"	(130.2)	4 1/8"	(104.8)	1 1/4"	(31.7)	2 1/4"	(57.1)	2015 (8.96)	88 (39.9)
981-L	3/4" & 7/8"	5 1/8"	(130.2)	4 1/8"	(104.8)	1 1/4"	(31.7)	2 1/4"	(57.1)	2015 (8.96)	82 (37.2)



Reference page 106 for general fitting and standard finish specifications.

TOLCO Fig. 985 - mechanical fast clamp

Size Range: Fig. 985-S fits rod sizes $\frac{3}{8}$ " thru $\frac{5}{8}$ "
 Fig. 985-L fits rod sizes $\frac{3}{4}$ " thru $\frac{7}{8}$ " rod sizes

Material: Steel

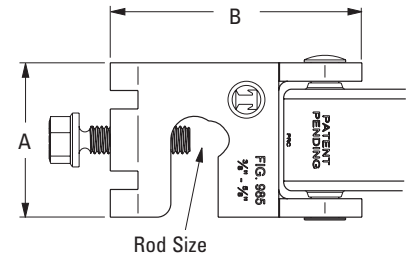
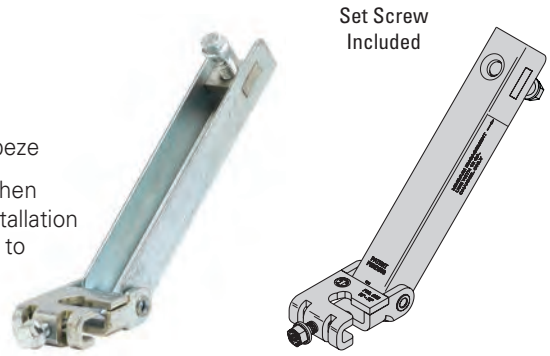
Function: Used for attachment of seismic bracing to pipe hanger or trapeze

Features: Allows up to 12" (304.8mm) of adjustability in brace length, when used with Fig. 986. Break-off set screw heads visually verify required installation torque. Unique "Fast Attach" yoke design allows Fig. 985 to be installed to hanger rods $\frac{3}{8}$ " thru $\frac{5}{8}$ " or $\frac{3}{4}$ " thru $\frac{7}{8}$ "

Finish: Electro-galvanized

Order By: Figure number, rod size & finish

Patent Pending



Part Number	Rod Size	A		B		Max. Horizontal Design Load lbs. (kN)	Approx. Wt./100 lbs. (kg)
		in. (mm)	in. (mm)	in. (mm)	in. (mm)		
985-S	$\frac{3}{8}$ " thru $\frac{5}{8}$ "	2" (50.8)	1 1/2" (38.1)	2" (50.8)	1 1/2" (38.1)	2015 (8.96)	204 (92.5)
985-L	$\frac{3}{4}$ " & $\frac{7}{8}$ "	2" (50.8)	1 5/8" (41.3)	2" (50.8)	1 5/8" (41.3)	2015 (8.96)	198 (89.8)

TOLCO Fig. 986 - Mechanical Fast Clamp

Size Range: Available with holes for $\frac{1}{2}$ "-13 thru $\frac{3}{4}$ "-10 fastener attachment.

Material: Steel

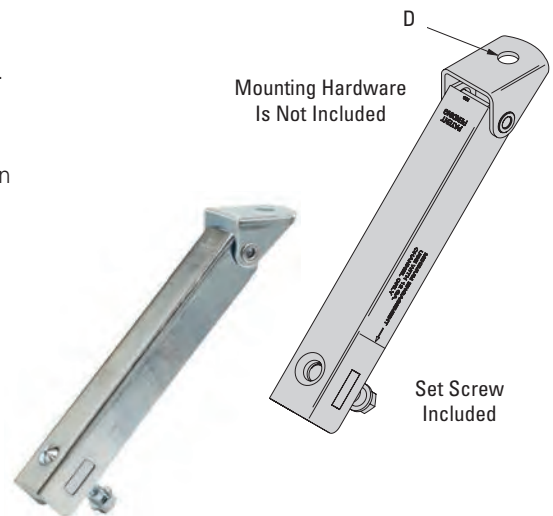
Function: Used for attachment of seismic bracing to structure or hanger.

Features: Allows up to 12" (304.8mm) of adjustability in brace length, when used with Fig. 985. Break-off set screw heads visually verify required installation torque. Swivel allows adjustment to various surface angles.

Finish: Electro-galvanized

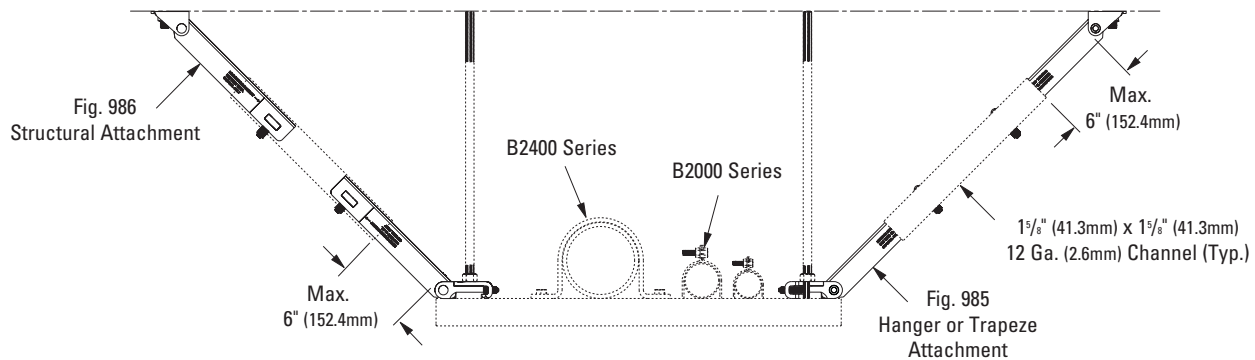
Order By: Figure number, rod size & finish

Patent Pending



Part Number	Rod Size	Hole Dia. D		Max. Horizontal Design Load* lbs. (kN)	Approx. Wt./100 lbs. (kg)
		in. (mm)	in. (mm)		
986-1/2	$\frac{1}{2}$ "	$\frac{9}{16}$ " (14.3)	$\frac{11}{16}$ " (17.5)	2015 (8.96)	204 (92.5)
986-5/8	$\frac{5}{8}$ "	$\frac{11}{16}$ " (17.5)	$\frac{13}{16}$ " (20.6)	2015 (8.96)	203 (92.1)
986-3/4	$\frac{3}{4}$ "	$\frac{13}{16}$ " (20.6)		2015 (8.96)	202 (91.6)

* When used with $\frac{15}{8}$ " (41.3mm) x $\frac{15}{8}$ " (41.3mm) 12 Ga. (2.6mm) channel



Reference page 106 for general fitting and standard finish specifications.