TOLCO Fig. 74 & Fig. 77 Installation Instructions

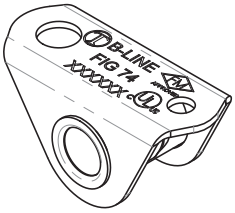
Structural attachment for restraint (sway brace) & hanger assembly

Product overview - Fig. 74

Options are available with or without hardware. All options should be used in accordance with NFPA-13.

- Accommodates ⅜" (9.5mm) or ½" (12.7mm) standard all threaded rod (ATR) as the restraint (brace) member, refer to NFPA 13 (2013) Table 9.3.5.11.8 (a)(b) & (c) for allowable brace lengths.
- Multiple holes to allow various fasteners to attach to the structure.
  - Larger hole accommodates ⅜" (9.5mm) fastener.
  - Smaller hole accomodates ¼" (6.4mm) or #10 fasteners.
- Barrel rolls freely to allow installation angles from 0° to 90° from the mounting surface.

Caution: Actual loads may differ depending on hardware used to secure to the structure. Load tables represent testing completed with ⅜" Hex Bolt.



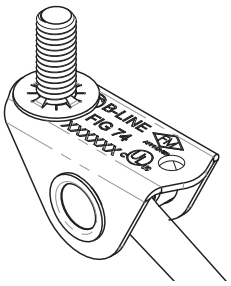
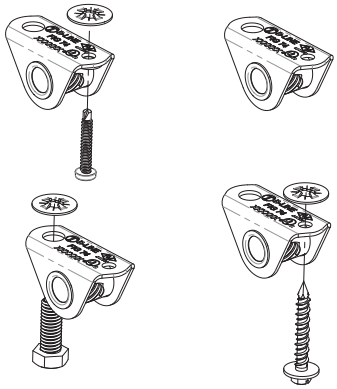
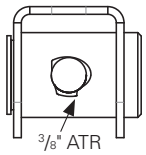
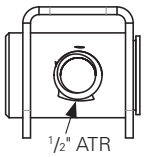


Fig. 74



Dual Threaded Hole





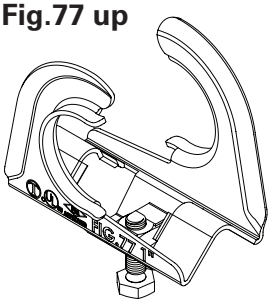
Product overview - Fig. 77

Fig. 77 – system piping attachment for restraint (sway brace) assembly

- Accommodates ⅜" (9.5mm) or ½" (12.7mm) standard all threaded rod (ATR) as the restraint (brace) member, refer to NFPA 13 for allowable brace length.
- UL Listed for Steel Sch. 10, 40 and light wall engineered pipe and plastic CPVC pipe.[§]
- FM Approved for Steel Sch. 10, 40 and light wall engineered pipe.

Fig. 74 & Fig.77 assembly

Fig.77 up



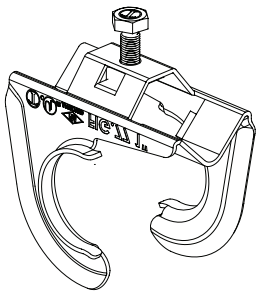


Fig.77 down

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Recommended installation method:

Step 1: Install all threaded rod (ATR), (brace member) to TOLCO™ Fig. 74 structural attachment. Bottom out ½" ATR in barrel nut or thread ⅜" ATR through to back side of barrel nut for proper engagement.

Step 2: Install TOLCO Fig. 77 system attachment to sprinkler pipe branch line to be restrained. You can position with the rod engagement either above or below the sprinkler pipe. Rod must extend a minimum of 1" (25.4mm) past the edge of the Fig. 77. The attachment can be slid along the pipe to position close to where the Fig. 74 structural attachment will be fastened to the structure. The snap on design of the Fig. 77 allows maximum adjustability during this stage of the installation process. The Fig. 74 can be rotated to accommodate angles from 0° to 90° from the mounting surface. See Fig. 74 images to the right.

Step 3: Engage ATR attached to the Fig. 74 structural attachment to the rod engagement portion of the Fig. 77 system attachment. **DO NOT** tighten the set bolt at this time.

Step 4: Install Fig. 74 structural attachment to the building structure. Follow fastener manufacturer and NFPA 13 guidelines to install appropriate fastener for the structural type (i.e. concrete, wood, steel).

Step 5: Tighten set bolt on Fig. 77 system attachment until head breaks off verifying proper installation torque.

Sway brace assemblies are intended to be installed in accordance with NFPA 13 and the manufacturer's installation instructions.

NOTICE

§ When installing Fig. 77 to plastic (CPVC) pipe do **NOT** use power tools to tighten the break-off head set bolt as this may cause damage to the plastic pipe.

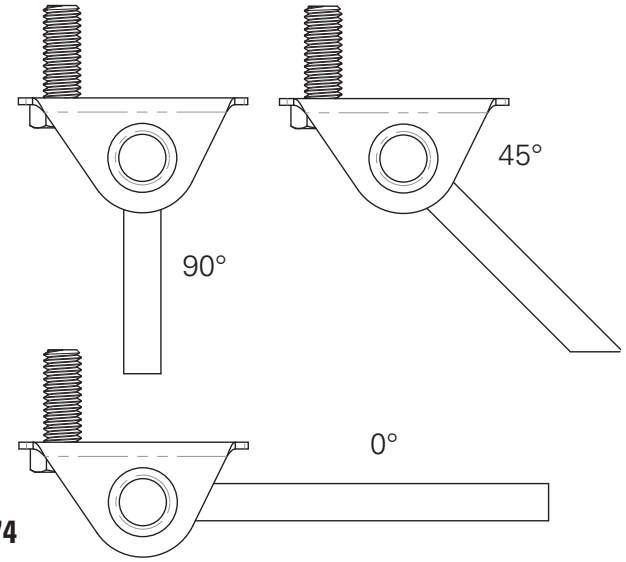

Fig. 74

- Fig. 74 can be rotated to any angle from 0° to 90° to meet the installation requirements.
- The same bending angles apply to a side mount application.
- These bending allowances apply to the installation of the Fig. 74 as both as a component of a branch line restraint or component of a hanger assembly.

UL listed maximum allowable loads (horizontal)***

Product	Sch. 10, Sch. 40, Dynaflow & CPVC ⅜" Rod (9.5mm)	½" Rod (12.7mm)
Fig. 74 (sway brace)	300 lbs. (1.344 kN)	300 lbs. (1.344 kN)
Fig. 74 (hanger)	1500 lbs. (6.672 kN)	1500 lbs. (6.672 kN)
Fig. 77 – 1" (25.4)	300 lbs. (1.344 kN)	300 lbs. (1.344 kN)
Fig. 77 – 1¼" (31.75)	300 lbs. (1.344 kN)	300 lbs. (1.344 kN)
Fig. 77 – 1½" (38.1)	300 lbs. (1.344 kN)	300 lbs. (1.344 kN)
Fig. 77 – 2" (50.8)	300 lbs. (1.344 kN)	300 lbs. (1.344 kN)

All thread rod maximum restraint lengths

Rod Size (in)	Root Dia. (in)	Least Radius of Gyration r (in)	Maximum Unbraced Length (L) - in/Max. Horizontal Load @ 45° (lbs.)** l/r=100	l/r=200	l/r=300	l/r=400†
⅜	0.300	0.075	7/(300)	14/(186)	22/(82)	30/(44)
½	0.404	0.101	10/(300)‡	20/(300)‡	30/(152)	40/(85)

† l/r = 400 NFPA 13 2010, Sec 9.3.6.1 (5) † l/r = 400 NFPA 13 2013,Sec 9.3.6.1 (5)

** Per NFPA 13 (2013) Table 9.3.5.11.8 (a)(b)(c); for additional load information at various other angles see this table.

‡Maximum load governed by Fig. 74 and Fig. 77 Maximum horizontal load.

FM approved* maximum allowable loads***

Product	30° - 44° ⅜" Rod (9.5mm)	30° - 44° ½" Rod (12.7mm)	45° - 59° ⅜" Rod (9.5mm)	45° - 59° ½" Rod (12.7mm)	60° - 74° ⅜" Rod (9.5mm)	60° - 74° ½" Rod (12.7mm)	75° - 90° ⅜" Rod (9.5mm)	75° - 90° ½" Rod (12.7mm)
Fig. 74	790 (3.51 kN)	790 (3.51 kN)	810 (3.60 kN)	810 (3.60 kN)	620 (2.76 kN)	620 (2.76 kN)	680 (3.02 kN)	680 (3.02 kN)
Fig. 77 – 1" (25.4)	140 (.623 kN)	160 (.712 kN)	200 (.890 kN)	230 (1.02 kN)	250 (1.11 kN)	280 (1.25 kN)	280 (1.25 kN)	320 (1.42 kN)
Fig. 77 – 1¼" (31.75)	140 (.623 kN)	170 (.756 kN)	200 (.890 kN)	250 (1.11 kN)	250 (1.11 kN)	300 (1.33 kN)	280 (1.33 kN)	340 (1.51 kN)
Fig. 77 – 1½" (38.1)	130 (.578 kN)	160 (.712 kN)	190 (.845 kN)	230 (1.02 kN)	230 (1.02 kN)	280 (1.25 kN)	260 (1.29 kN)	320 (1.42 kN)
Fig. 77 – 2" (50.8)	120 (.534 kN)	150 (.667 kN)	170 (.756 kN)	210 (.934 kN)	210 (.934 kN)	260 (1.29 kN)	240 (1.07 kN)	290 (1.29 kN)

*Approved for Sch. 10, Sch. 40, Dynaflow, Eddy flow.

***Caution: Actual loads may differ depending on hardware used to secure to the structure. Load tables represent testing completed with ⅜" Hex Bolt.

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