TOLCO™ Fig. 76 & Fig. 77
Branch Line Restraint Installation Instructions

Fig. 76 – Structural Attachment for Restraint (Sway Brace) Assembly

- The required type, number and size of fasteners used for the structure attachment fitting shall be in accordance with NFPA 13.
  - Accommodates 3⁄8" (9.5mm) or ½" (12.7mm) standard all thread 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 3⁄8" (9.5mm) fastener
    - Two smaller holes accommodate #10 fastener
  - Can be field bent to accommodate angles from 15° to 90° from the mounting surface.

Fig. 77 – System Piping Attachment for Restraint (Sway Brace) Assembly

- Accommodates 3⁄8" (9.5mm) or ½" (12.7mm) standard all thread 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.

UL Listed as a hanger in this application only. Must be completely bent open and only with ¾” ATR to accommodate up to 4” (100mm) maximum pipe size.
Recommended Installation Method:

**Step 1:** Install all thread rod (brace member) to TOLCO™ Fig. 76 Structural Attachment. Bottom out ATR to ensure full thread engagement. This can be visually confirmed due to the open thread design.

**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 min. 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. 76 structural attachment will be fastened to the structure. The snap on design allows maximum adjustability during this stage of the installation process. Can be field bent to accommodate angles from 15° to 90° from the mounting surface. The product shall not be bent more than three times to prevent material fatigue. (See Detail A & B at right).

**Step 3:** Engage ATR (previously attached to the Fig. 76 Structural Attachment to the rod engagement portion of the Fig. 77 System Attachment. DO NOT tighten the set bolt at this time.

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

### UL Listed Maximum Allowable Loads (Horizontal)

<table>
<thead>
<tr>
<th>Product</th>
<th>Sch. 10, Sch. 40, Dynaflow &amp; CPVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig. 76</td>
<td>300 lbs. (1.344 kN) 300 lbs. (1.344 kN)</td>
</tr>
<tr>
<td>Fig. 77 – 1” (25.4)</td>
<td>300 lbs. (1.344 kN) 300 lbs. (1.344 kN)</td>
</tr>
<tr>
<td>Fig. 77 – 1/4” (31.75)</td>
<td>300 lbs. (1.344 kN) 300 lbs. (1.344 kN)</td>
</tr>
<tr>
<td>Fig. 77 – 1/2” (38.1)</td>
<td>300 lbs. (1.344 kN) 300 lbs. (1.344 kN)</td>
</tr>
<tr>
<td>Fig. 77 – 2” (50.8)</td>
<td>300 lbs. (1.344 kN) 300 lbs. (1.344 kN)</td>
</tr>
</tbody>
</table>

### FM Approved* Maximum Allowable Loads

<table>
<thead>
<tr>
<th>Product</th>
<th>30° - 44°</th>
<th>45° - 59°</th>
<th>60° - 74°</th>
<th>75° - 90°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig. 76</td>
<td>380 (1.69 kN) 420 (1.87 kN)</td>
<td>530 (2.36 kN) 580 (2.68 kN)</td>
<td>800 (3.56 kN) 1,020 (4.54 kN)</td>
<td>750 (3.34 kN) 1,110 (4.94 kN)</td>
</tr>
<tr>
<td>Fig. 77 – 1” (25.4)</td>
<td>140 (.623 kN) 160 (.712 kN)</td>
<td>200 (.890 kN) 230 (1.02 kN)</td>
<td>250 (1.11 kN) 280 (1.25 kN)</td>
<td>280 (1.25 kN) 320 (1.42 kN)</td>
</tr>
<tr>
<td>Fig. 77 – 1/4” (31.75)</td>
<td>140 (.623 kN) 170 (.756 kN)</td>
<td>200 (.890 kN) 250 (1.11 kN)</td>
<td>250 (1.11 kN) 300 (1.33 kN)</td>
<td>280 (1.33 kN) 340 (1.51 kN)</td>
</tr>
<tr>
<td>Fig. 77 – 1/2” (38.1)</td>
<td>130 (.578 kN) 160 (.712 kN)</td>
<td>190 (.845 kN) 230 (1.02 kN)</td>
<td>230 (1.02 kN) 280 (1.25 kN)</td>
<td>260 (1.29 kN) 320 (1.42 kN)</td>
</tr>
<tr>
<td>Fig. 77 – 2” (50.8)</td>
<td>120 (.534 kN) 150 (.667 kN)</td>
<td>170 (.756 kN) 210 (1.93 kN)</td>
<td>210 (.934 kN) 260 (1.29 kN)</td>
<td>240 (1.07 kN) 290 (1.29 kN)</td>
</tr>
</tbody>
</table>

*Approved for Sch. 10, Sch. 40, Dynaflow, Eddy flow. Marks shown are property of their respective owners.

**Step 4:** Install Fig. 76 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.

§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.

### All Thread Rod Maximum Restraint Lengths

<table>
<thead>
<tr>
<th>Size (in)</th>
<th>Dia. (in)</th>
<th>r (in)</th>
<th>l/r=100</th>
<th>l/r=200</th>
<th>l/r=300</th>
<th>l/r=400†</th>
</tr>
</thead>
<tbody>
<tr>
<td>½</td>
<td>0.308</td>
<td>0.075</td>
<td>7/(300)</td>
<td>14/(198)</td>
<td>22/(82)</td>
<td>30/(44)</td>
</tr>
<tr>
<td>¾</td>
<td>0.404</td>
<td>0.101</td>
<td>10/(300)</td>
<td>20/(300)</td>
<td>30/(152)</td>
<td>40/(85)</td>
</tr>
</tbody>
</table>

† l/r = 400 NFPA 13 2010, Sec 9.3.6.1 (5)
** Per NFPA 13 (2013) Table 9.3.5.11.8 (a)l/b(c); for additional load information at various other angles see this table.

†Max load governed by Fig. 76/77 Max horizontal load.

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**Eaton**
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

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B-Line Division
13201 Dahlia Street, Suite 200
Fontana, CA 92337
United States
Phone: 800-861-7415

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