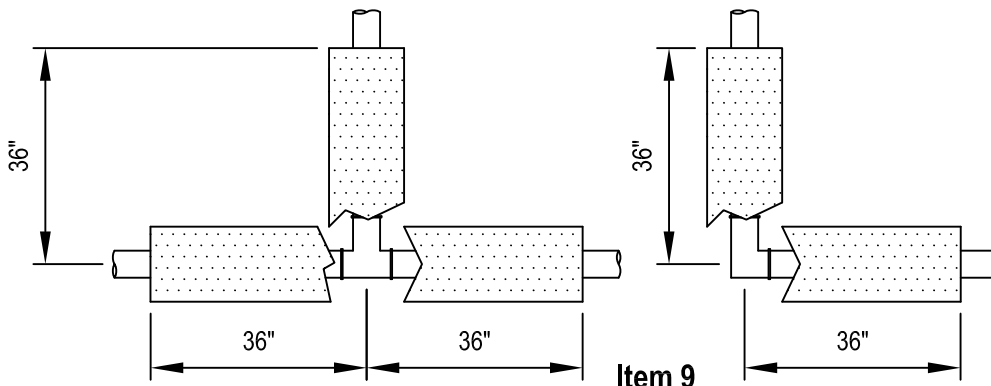
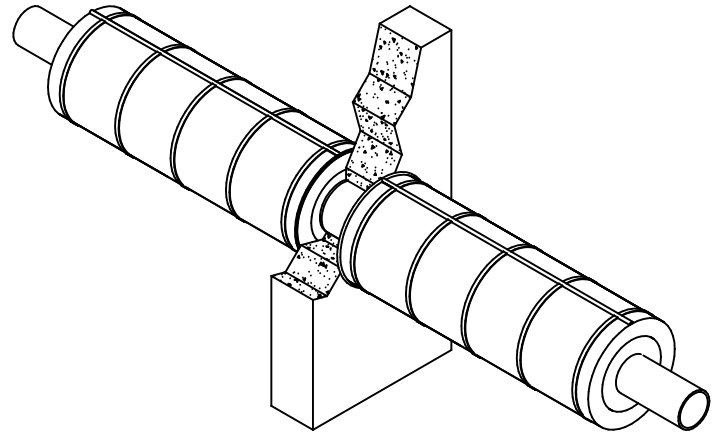
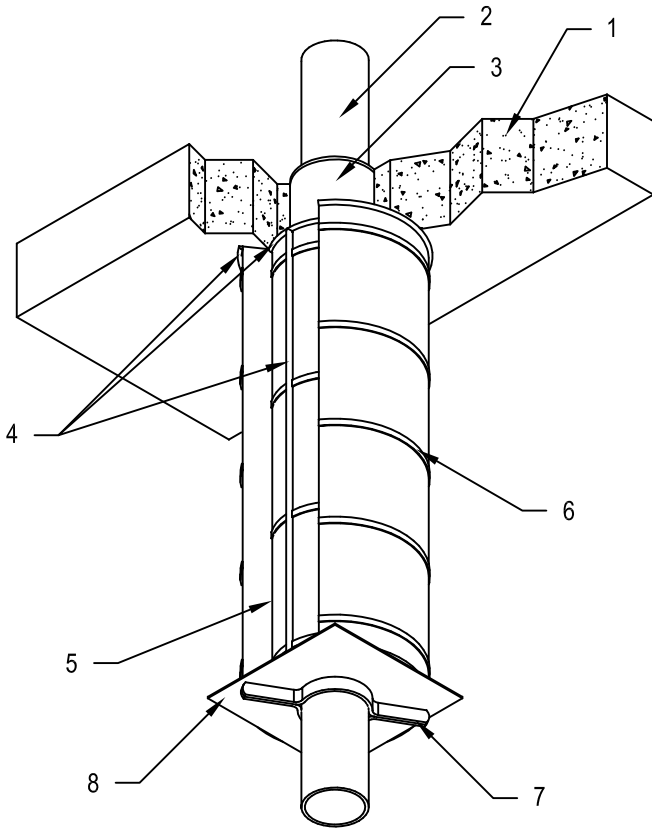


Hilti Corporation
 Design Number HI/PF 120-03
 Through Penetration
 FS-ONE MAX Intumescent Firestop Sealant
 ASTM E 814 (2011) & UL 1479 (2010)
 F Rating: 2 Hours
 T Rating: 2 Hours
 H Rating: 2 Hours
 CAN/ULC S115 (2005) at 2.5 Pa
 FTH: 2 Hours

HI/PF 120-03



Hilti Firestop Systems

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 December 16, 2014



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Design Number HI/PF 120-03
Through Penetration
FS-ONE MAX Intumescent Firestop Sealant
ASTM E 814 (2011) & UL 1479 (2010)
F Rating: 2 Hours
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CAN/ULC S115 (2005) at 2.5 Pa
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1. FLOOR/CEILING OR WALL ASSEMBLY: Use a two-hour fire-rated floor/ceiling assembly or concrete or block wall assembly consisting of min. 6 in. (180 mm) thick normal weight (100-150 pcf (1600-2400 kg/m³)) reinforced concrete or 6 in. (152 mm) thick hollow or concrete filled Concrete Masonry Units (CMU). Create a round through-opening with max. diameter of 6 in. (152 mm).
2. PENETRATING ITEM: Install max. 4 in. (102 mm) diameter copper tubing centered or offset max. 1-7/8 in. (48 mm) in the through opening created in the floor/ceiling or wall assembly (Item 1).
3. PACKING MATERIAL: Install min. 4 pcf (64 kg/m³) density mineral wool batt insulation in the annular space, compressed min. 25% around the penetrating item (Item 2) as follows:
 - Floor Ceiling Assembly-Install nominal 5-3/4 in. (146 mm) layer recessed 1/4 in. (6 mm) from the top of the floor/ceiling assembly (Item 1)
 - Wall Assembly: Install nominal 5-1/2 in. (140 mm) layer recessed 1/4 in. (6 mm) from both surfaces of the wall assembly (Item 1).
 If the floor/ceiling or wall assembly (Item 1) is greater than 6 in., the 36 in. length of insulation (Item 5) may be reduced the amount the floor/ceiling or wall assembly (Item 1) exceeds 6 in. If the insulation (Item 5) is reduced, the packing material (Item 3) must be increased by the same thickness in the annular space.
4. CERTIFIED COMPANY: Hilti Corporation
 CERTIFIED PRODUCT: Sealant
 MODEL: FS-ONE MAX Intumescent Firestop Sealant
 Apply nominal 1/4 in. (6 mm) layer of FS-ONE MAX Intumescent Firestop Sealant to fill the 1/4 in. (6 mm) void left after installing the packing material (Item 3). After installing the insulation (Item 5) around the penetrating item (Item 2), apply a nominal 1/4 in. (6 mm) bead of FS-ONE MAX Intumescent Firestop Sealant in the longitudinal seam of the insulation and at the insulation (Item 5) and floor/ceiling or wall assembly (Item 1) interface.
5. INSULATION: Install two layers of 2 in. thick, 36 in. (914 mm) long, 8 pcf (128 kg/m³) density hollow cylindrical mineral wool pipe insulation around penetrating item (Item 1) installed below the floor/ceiling assembly (Item 1) or on both sides of the wall assembly (Item 1).
6. STAINLESS STEEL CLAMP: Install 1/2 in. (13 mm) wide stainless steel hose clamps to secure insulation (Item 5) around penetrating item (Item 2). Install hose clamps around the inner layer of insulation spaced 2 in. (51 mm) from the ends of the insulation and 12 in. (305 mm) on center (oc) between. Install hose clamps around the outer layer of insulation spaced 2 in. (51 mm) from the ends of the insulation and 8 in. (203 mm) oc between.
7. RISER CLAMP: When Tees or elbows (Item 9) are not used, install 4 in. (102 mm) galvanized steel riser clamp around penetrating item (Item 2) flush with the end of the insulation (Item 5) (not required on horizontal penetration).
8. STEEL PLATE: When Tees or elbows (Item 9) are not used, install 12- in. X 12 in. steel plate between insulation (Item 5) and the riser clamp (Item 7) to prevent the insulation (Item 5) from sagging (not required on a horizontal penetration)..
9. TEE/ELBOW (Optional): Attach to penetrating item (Item 2) when required. When installing tee or elbow at a distance greater than 36 in. (914 mm) from the floor/ceiling or wall assembly (Item 1), insulation (Item 5) is only required from the floor/ceiling or wall assembly (Item 1) to the Tee or elbow. If the tee or elbow is less than 36 in. (914 mm) from the floor/ceiling or wall assembly (Item 1), insulation (Item 5) must be installed from the floor/ceiling or wall assembly (Item 1) to the tee or elbow and installed min. 36 in. (914 mm) from the junction of the tee or elbow in both directions. Secure insulation (Item 5) around tee/elbow using stainless steel hose clamps (Item 6) spaced 12 in. oc on the inner layer and 8 in. (203 mm) oc on the outer layer.



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