Installation

TYCO RAVEN 5.6K Institutional Pendent and Horizontal Sidewall Sprinklers must be installed in accordance with this section.

General Instructions
Integrity of the tamper-resistant design of RAVEN Escutcheons is dependent on the piping installation design. When installed properly, the escutcheon is held fast (i.e., tight with no movement or gap) to the mounting surface (ceiling or wall, as applicable) by tightening the sprinkler assembly into the sprinkler fitting. Be careful not to create too much force between the escutcheon and wall, as extensive force may cause issues with the pulling of the sprinkler body from the stem, possibly causing warping, cracks, and leaks.

A tamper-resistant installation requires all of the following:

- The sprinkler fitting must be properly located with respect to distance from the face of the sprinkler fitting to the face of the mounting surface (Ref. Figures 5 & 6).
- The sprinkler fitting must be rigidly secured and immobile through the use of the retaining flange, installed flush to the back of the wall or above the ceiling and secured with the pipe set screws.
- The centerline of the sprinkler fitting must be perpendicular to the mounting surface to assure that the Institutional Escutcheon sits squarely against the mounting surface around its entire perimeter.

Figure 7 illustrates a technique to adjust the location of the sprinkler fitting to help assure immobility of the sprinkler fitting and to help maintain perpendicularity of the sprinkler fitting to the mounting surface.

While Figure 7 illustrates a horizontal installation, it can be applied to pendent installations.

When applied, the technique shown in Figure 7 allows the sprinkler/supply pipe to be pulled back into the mounting surface from behind the wall or above the ceiling, and the retaining flange set flush to the back of the wall or above the ceiling and secured with the retaining flange pipe set screws. This technique will help overcome problems with assuring that the escutcheon is held fast to the mounting surface (i.e., tight with no movement or gap).

It is recommended that flexible sprinkler piping is used to connect the sprinkler pipe to the supply piping to maximize installation flexibility and to ensure that the sprinkler and the escutcheon are installed properly, as shown in Figure 7.

A 1/2 in. NPT sprinkler joint should be obtained by applying a minimum-to-maximum torque of 7 to 14 lb-ft (9,5 to 19,0 N·m). Higher levels of torque may damage the sprinkler with consequent leakage or impairment of the sprinkler. Rather than over-torquing to meet proper orientation for the horizontal sidewall sprinkler, stop tightening earlier.

Do not attempt to compensate for improper location of the sprinkler fitting by under- or over-tightening the sprinkler.

After installation is complete, ensure the RAVEN Escutcheon is held fast (i.e., tight with no movement or gap) to the mounting surface and that the escutcheon sits squarely against the mounting surface around its entire perimeter.

The following tools are recommended for proper installation of RAVEN Institutional Sprinklers:

- TEFLON tape
- TYCO W-Type 25 Installation Wrench
- 1/2 in. drive ratchet wrench
- Torque wrenches
- Ratchet extension (optional)
- Level

NOTICE

Install RAVEN Pendent Sprinklers with the centerline of the waterway perpendicular to the ceiling. Install RAVEN Horizontal Sidewall sprinklers with the centerline of their waterway parallel with the ceiling and perpendicular to the back wall.

Step 1. Inspect the sprinkler for any visible signs of damage that could have occurred during shipping or handling.

Apply a non-hardening pipe-thread sealant such as TEFLON tape to the NPT thread of the sprinkler. Applying between two (2) and four (4) full wraps of tape is recommended.

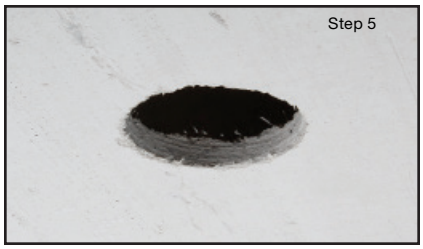
Carefully remove the orange protective cap from the sprinkler by pulling it straight out without bending it.

Verify that the sprinkler identification number (SIN) and temperature rating located on the side of the sprinkler match installation requirements.

Step 2. Align the TYCO W-Type 25 Installation Wrench with the sprinkler. The flat surface should be in line with the small colored dot on the sprinkler.

Step 3. Ensure that the TYCO W-Type 25 Installation Wrench is fully engaged onto the sprinkler. Fully insert all three Wrench Prongs into the slots on the sprinkler body.

Step 4. With the Wrench on the sprinkler, place the escutcheon over the sprinkler.

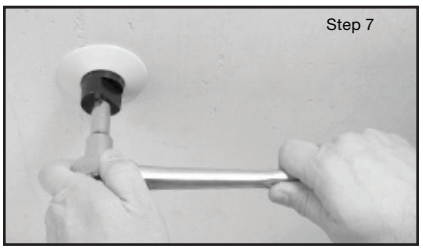


Step 5. Ensure that the ceiling/wall is smooth for the escutcheon to sit against and that the distance from the ceiling/wall surface to the sprinkler fitting is appropriate. As shown in Figures 5 and 6, the take-out dimensions are 1 inch for pendent sprinklers and 1-5/16 inches for horizontal sidewall sprinklers.

NOTICE

The sprinkler has intentionally been designed to be difficult to grasp by hand. Therefore, the use of the W-Type 25 Installation Wrench for hand-tightening assists in threading the sprinkler. Also, use of the W-Type 25 Installation Wrench helps avoid damage to the sprinkler during installation.

Step 6. With the escutcheon in place and with pipe-thread sealant applied to the pipe threads, hand-tighten the sprinkler into the sprinkler fitting using the TYCO W-Type 25 Installation Wrench with the wrench prongs fully engaged with the sprinkler wrenching notches. The wrench prongs are designed to engage the wrenching notches in the sprinkler body, and are also uniquely spaced to align with the sprinkler wrenching notches in one position.



Step 7. Wrench-tighten the sprinkler using only the TYCO W-Type 25 Installation Wrench (Ref. Figure 3).

Insert a 1/2 in. drive ratchet wrench (with or without the extension) into the TYCO W-Type 25 Installation Wrench. Ensure the ratchet wrench remains parallel to the ceiling/wall. A ratchet extension can help to keep the wrench in line with the sprinkler. Torque for the RAVEN Institutional Sprinkler is 7 to 14 lb-ft.

NOTICE

To help prevent slippage of the wrench and while using a 1/2 in. drive ratchet wrench, place one hand over the TYCO W-Type 25 Installation Wrench while tightening with the other hand.

A recommended technique to determine if the torque range is achieved involves the use of two different torque wrenches. Adjust first with a 7 lb-ft torque wrench, followed by adjusting with a 14 lb-ft wrench.

Step 8. For horizontal sidewall sprinklers, a Level can be placed on top of the flat surface of the TYCO W-Type 25 Installation Wrench to orient the sprinkler correctly.

Step 9. After installation is complete, ensure that the RAVEN Escutcheon is held fast against the mounting surface and sits squarely against the ceiling around its entire perimeter.

When applied, the technique shown in Figure 7 allows the sprinkler/supply pipe to be pulled back into the mounting surface from behind the wall or above the ceiling, and the retaining flange set flush to the back of the wall or above the ceiling and secured with the retaining flange pipe set screws. Do not over-tighten the wall set screws, as over-tightening these screws may damage the sprinkler.

To verify correct sprinkler application, refer to the Notes in Figures 3 and 4 on SIN color dot indicators.

For horizontal sidewall sprinklers, the SIN color dot also helps verify deflector orientation. In proper installations of RAVEN Horizontal Sidewall Sprinklers, SIN color dots face up.

NOTICE

If the escutcheon is not held fast (i.e., tight with no movement or gap) to the mounting surface and as an option to relocating the sprinkler fitting (increasing the face-of-fitting to face-of-mounting surface distance), up to two (2) Adjustment Spacer Rings as shown in Figure 3 may be utilized. Each Adjustment Spacer Ring can account for 0.075 inches of gap between the escutcheon and mounting surface. Therefore, if the gap is greater than 0.150 inches, the sprinkler fitting will need to be relocated to assure proper installation of both the sprinkler and escutcheon.