

UPC-66, UPC-67A, and UPC-68 Slotted Outlets

Parts included:

- (1) insulated slotted outlet (90° or straight)
- (1) decorative trim plate with fasteners
- (1) mounting bracket and rails (UPC-66, UPC-67A, and UPC-68)
- (1) clamp, sound attenuator

NOTE: UPC-67 replaced by UPC-67A which includes mounting bracket and rails.

Application

In addition to the round outlets, Unico also manufactures rectangular outlets. The rectangular outlets feature a narrow width slot that gives a better appearance in a sidewall installation. There are four (4) different types of slotted outlets. The type of outlet not covered by this bulletin is connected directly to the plenum and is described in Bulletin 20-58. This bulletin covers the three outlet types which are used in conjunction with the Sound Attenuator supply tubing.

The Unico System patented 90° slotted outlets (UPC-66 and UPC-67A) are specially designed to quietly turn the air inside a typical wood frame stud wall cavity. The 90° outlets are particularly useful where there is insufficient room to provide the minimum sound attenuator bend radius. Other applications for the 90° outlet include placement near the perimeter of a low-pitched roof, and in applications with only a small cavity between a dropped ceiling and the roof.

The UPC-66 is made of cast aluminum and is designed for commercial applications that prohibit the use of plastic ducting. Most applications will use the UPC-67A

which is identical to the UPC-66 but made of plastic and intended for residential use. Use of the UPC-66 or UPC-67A will depend on local code requirements.

The Unico System straight slotted outlet (UPC-68) with its patent pending contour shape is designed for use where placement of the standard round outlet is not practical. The straight slotted outlets are particular useful where there is insufficient room for a round outlet at the desired termination point. A typical application for the straight slotted outlet would be placement in a cabinet soffit. The UPC-68 is made of plastic and is intended for residential use. Both the 90° and straight slotted outlets may also be used as ceiling outlets.

Specifications

Recommended airflow: 15 to 35 CFM

Recommended number of outlets: 6 per nominal ton

Slotted outlet material: aluminum, cast (UPC-66)
plastic, HDPE, black (UPC-67A/68)
UL-94 Rating - HB

Trim plate material: Plastic, ABS, white, paintable

Trim plate part number: A00297-001 (UPC-66)
A00297-002 (UPC-67A/68)

Wall thickness: 3/8 to 3/4 inch (0.95 to 1.91-cm)

Size of opening: 1/2 × 8-inch (13 × 20-mm)

Weight: UPC-66: 2.5 lbs (1.1 kg)
UPC-67: 0.8 lbs (0.36 kg)
UPC-68: 0.8 lbs (0.36 kg)

Mounting bracket length:
14 to 24 inches (356 and 610 mm)

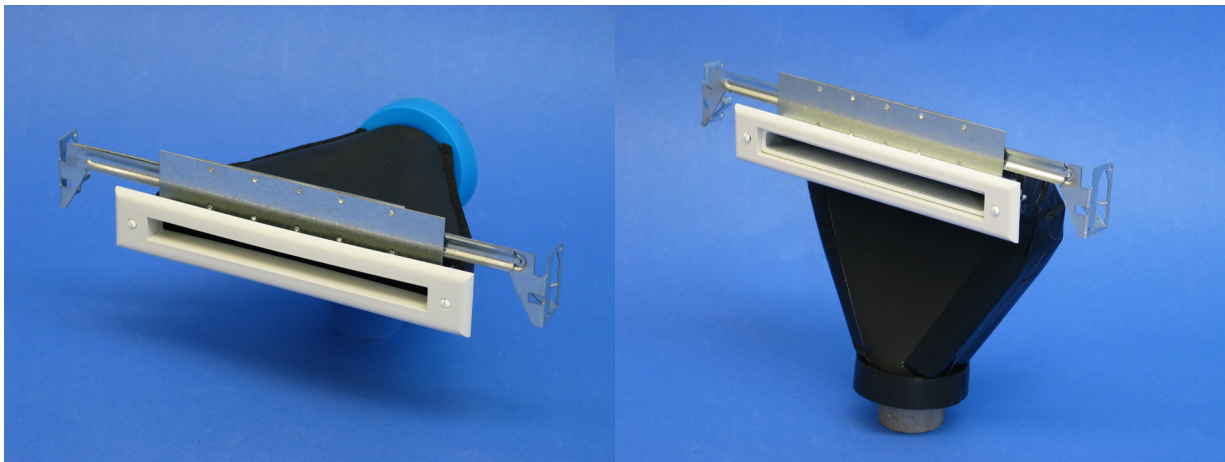


Figure 1. UPC-68 (left) and UPC-66 Shown with Trim Plate, Mounting Bracket, and Hanger Rails



Figure 2. Typical Wall Installation, 90° Outlet

Installation

Location: For wall installations the slotted outlet should be located high on the wall above head height and a minimum of 5-inches (13-cm) below the ceiling. For ceiling installations locate it a minimum of 4-inches (10-cm) away from the adjacent wall.

Note: The plastic outlets are shipped with a Styrofoam plug, **REMOVE the plug before the trim plate is installed.**

Mounting: For new construction, mount the outlet between the joists with the tip of the outlet protruding 0.50 inches (12 mm) beyond the joists. For existing construction, you must cut an opening large enough to fit the outlet from either the front or backside of the wall. The minimum size opening for the 90° outlets is 5-inches high \times 9.75-inches wide (125 \times 240 mm). The minimum size opening for the straight outlet is 3.5-inches high \times 9.75-inches wide (89 \times 240 mm). You will need to cut a larger opening to use the mounting brackets for both types of outlets.

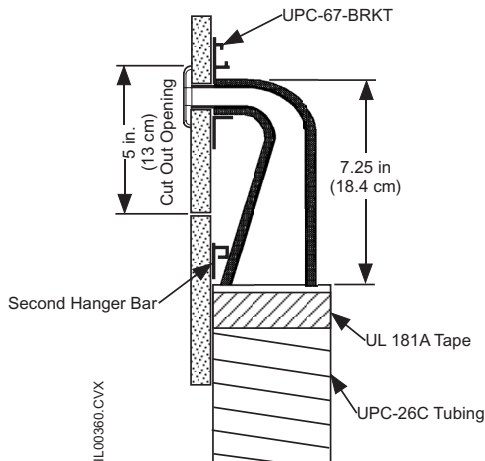


Figure 3. Existing Wall Cut-out Opening, 90° Outlet

Figures 3 and 4 show typical wall installations. Insert one of the hanger rails in the slotted channel on the backside of the mounting plate. Expand the hanger rails to reach the studs and nail securely so the mounting plate will be flush with the backside of the dry wall when it is installed. The UPC-66 and UPC-67A have a tendency to

swing out at the bottom. Use the second set of hanger rails to act as a stop at the location of the tape ring. Position the hanger rails so the outlet discharge will be square with the dry wall once it is installed.

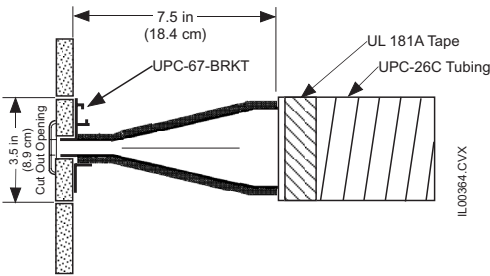


Figure 4. Existing Wall Cut-out Opening, Straight Outlet

Special Instructions for Humid Conditions: Anytime the outlets are located in a humid space, be sure to wrap the exterior of the outlet with at least 1-inch (25-mm) of additional fiberglass blanket insulation or use a polyurethane foam spray equivalent to an R-4. The UPC-66 should not be used in areas of high humidity. As an option to the UPC-66, the UPC-67A is recommended for use in humid spaces with the additional R-4 equivalent insulation.

Connecting to Duct: Connect a minimum of 3 feet (0.9 m) of sound attenuator (UPC-26C) to the outlet using a clamp (UPC-53) and UL-181-A or UL-181-B listed tape. Be sure to provide the proper bend radius for the tubing.

UPC-67 Alternative Mounting Instructions: As an alternative to the supplied mounting bracket, the UPC-67 is light enough to secure to any cross member or stringer using sheet metal screws. Metal duct drives can also be used to hold the outlet in place.

Installing the Trim Plate: Once the outlet and ducting is in place, hang the interior wall, cutting a rectangular hole for the tip of the outlet to protrude. The size of the hole is different for the UPC-66 and UPC-67/68 because they have different trim plates. The size of hole to cut for each outlet is listed in Table 1. The UPC-66 trim plate fits around the tip of the outlet, whereas the UPC-67 and UPC-68 trim plates fit inside of the outlet.

Table 1. Rough-In Hole Size

Model	Rough-in Size of Slot
UPC-66	1.25 \times 9.25 inches (30 \times 235 mm)
UPC-67	1.00 \times 9.25 inches (25 \times 235 mm)
UPC-68	1.00 \times 9.25 inches (25 \times 235 mm)

The UPC-66 ships with a removable cardboard ring you can use as a spacer to maintain proper clearance for the trim plate when you patch the wall. No extra clearance is required for the UPC-67A or the UPC-68. Leave the Styrofoam plug in place while patching the wall to maintain the shape of the outlet.

The trim plate mounting fasteners are supplied with the outlet. The UPC-66 includes two screws and the UPC-

67A and UPC-68 include two screws and toggles. When installed properly, the trim plate and the outlet mounting plate will sandwich the wall. Once installed, you can paint the trim plate if desired.

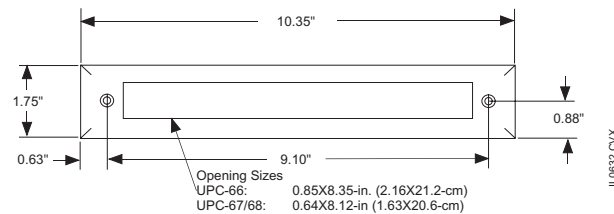


Figure 5. Trim Plate Dimensions

Ceiling Mount Special Installation: Install the tubing parallel to attic rafters to prevent any sharp bends in the tubing run near the outlet unless there is room to have at least a 6-inch (15-cm) or more radius for the tubing connected to the outlet (see Figure 3). For dropped ceilings, extend the hanger rails the width of the ceiling tiles.

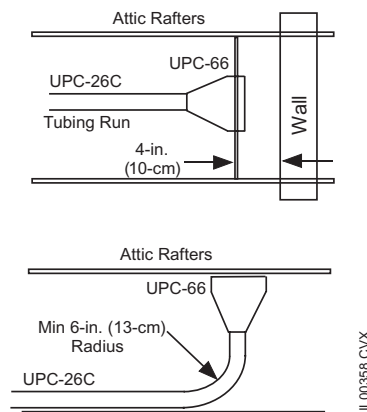


Figure 6. Existing Ceiling Installation

Commissioning

Always verify the airflow before the outlet is completely enclosed. Check airflow with a TurboMeter positioned at the center of the outlet (see Figure 7). Using the “knots” reading to find the airflow rate from the tables on the following page or for the 90° outlet, multiply the value by 4, then add 4 and for the straight outlet, simply multiply the “knots” reading by 6. For example, if the TurboMeter indicates 7 knots for the 90° outlet, this would be $(7 \times 4) + 4 = 32$ CFM. If the TurboMeter reads 5.5 knots for the straight slotted outlet this would be $5.5 \times 6 = 33$ CFM. Equations for these calculations are listed below or use the tables on the following page. (Multiply CFM by 0.4719 to obtain L/s.)

Flow rate calculations for slotted outlets:

90° Outlet: $(\text{Knots} \times 4) + 4 = \text{CFM}$

Straight Outlet: $\text{Knots} \times 6 = \text{CFM}$

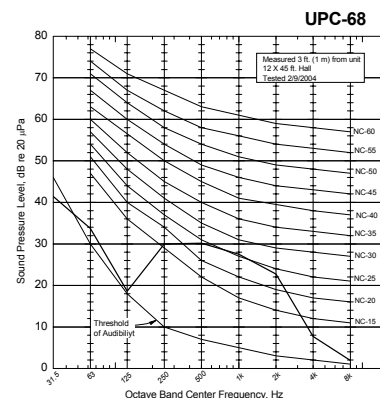
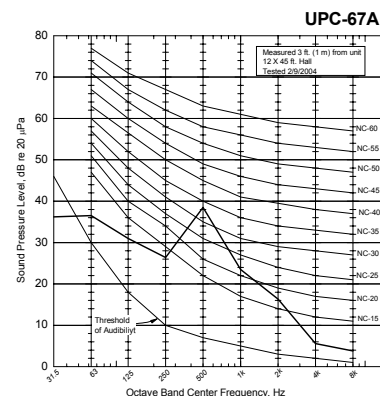
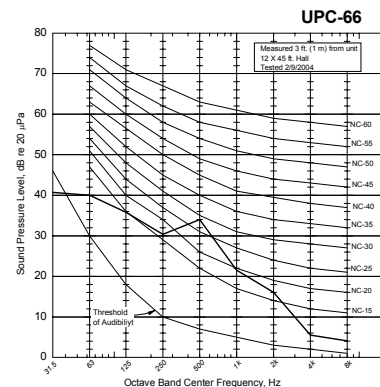
Acoustical Data

The sound data presented in this bulletin was measured in a large reverberant hall with hard surfaces for the

walls and floor. Each outlet was installed with 3-feet (0.9-m) sound attenuator tubing. It is considered to be the worst case (i.e. loudest) situation. The sound pressure levels were taken at a distance of 3 feet (0.9-m) from the outlet. Table 2 lists Noise Criteria (NC) and A-Weighted sound levels (dBA) for each outlet operating at 35 CFM.

Table 2. Sound Rating Data

Outlet Type	Noise Criteria (NC)	A-Weighted Sound Level (dBA)
Straight Slotted Outlet	NC30	38 dBA
90° Aluminum Outlet	NC30	35 dBA
90° Plastic Outlet	NC25	38 dBA
Round Outlet With Screen	NC30	35 dBA
Round Outlet Without Screen	NC25	33 dBA



TurboMeter “knots” to Airflow Tables

Knots	Straight Slotted Outlet Airflow, CFM (L/S)	Knots	90° Slotted Outlet Airflow, CFM (L/s)	Knots	Round Outlet Airflow, CFM (L/s)
3.3	20 (9.4)	4.0	20 (9.4)	10.0	20 (9.4)
3.5	21 (9.9)	4.3	21 (9.9)	10.5	21 (9.9)
3.7	22 (10.4)	4.5	22 (10.4)	11.0	22 (10.4)
3.8	23 (10.9)	4.8	23 (10.9)	11.5	23 (10.9)
4.0	24 (11.3)	5.0	24 (11.3)	12.0	24 (11.3)
4.2	25 (11.8)	5.3	25 (11.8)	12.5	25 (11.8)
4.3	26 (12.3)	5.5	26 (12.3)	13.0	26 (12.3)
4.5	27 (12.7)	5.8	27 (12.7)	13.5	27 (12.7)
4.7	28 (13.2)	6.0	28 (13.2)	14.0	28 (13.2)
4.8	29 (13.7)	6.3	29 (13.7)	14.5	29 (13.7)
5.0	30 (14.2)	6.5	30 (14.2)	15.0	30 (14.2)
5.2	31 (14.6)	6.8	31 (14.6)	15.5	31 (14.6)
5.3	32 (15.1)	7.0	32 (15.1)	16.0	32 (15.1)
5.5	33 (15.6)	7.3	33 (15.6)	16.5	33 (15.6)
5.7	34 (16.0)	7.5	34 (16.0)	17.0	34 (16.0)
5.8	35 (16.5)	7.8	35 (16.5)	17.5	35 (16.5)
6.0	36 (17.0)	8.0	36 (17.0)	18.0	36 (17.0)
6.2	37 (17.5)	8.3	37 (17.5)	18.5	37 (17.5)
6.3	38 (17.9)	8.5	38 (17.9)	19.0	38 (17.9)
6.5	39 (18.4)	8.8	39 (18.4)	19.5	39 (18.4)
6.7	40 (18.9)	9.0	40 (18.9)	20.0	40 (18.9)



Figure 7. TurboMeter Placement for Slotted Outlets