



# Sound Attenuator and Supply Tubing and Balancing Orifices Installation Instructions

## GENERAL

The supply tubing (Unico part no. UPC-25) is a flexible aluminum 2-inch (51-mm) duct. It is insulated and ready to be installed. It is available in 3 different insulation thicknesses (See Table 1). The supply tubing is a Class 1 air duct listed with ETL per UL-181 and to Canadian standard CAN/ULC STD S110-M86.

The sound attenuator tubing (Unico part no. UPC-26C) is a flexible nylon lined 2-inch (51-mm) ID sound dampening duct. It is insulated and ready to be installed. It is available with 4 different insulation thicknesses to satisfy various codes (See Table 1). The sound attenuator is also a Class 1 air duct listed with ETL per UL-181 and to Canadian standard CAN/ULC STD S110-M86.

The balancing orifice kits offer a means to balance the system at the outlets (UPC-36-15) or at the plenum takeoff (UPC-36-15).

For small rooms or when only a partial outlet is required, add a balancing orifice. Use balancing orifices sparingly to maximize the airflow.

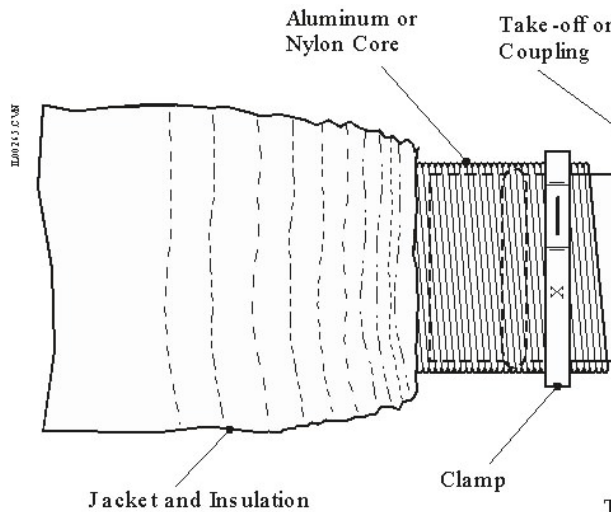
**Table 1:** Insulation Thicknesses

Model	Outside Dia, inch (mm)	R-factor °F-hr-ft <sup>2</sup> /Btu	
		Rated*	Effective**
UPC-26C / UPC-25	3.5 (89)	3.2	3.9
UPC-26CR4 / UPC-25-R4	4.14 (102)	4.2	5.9
UPC-26CR6 / UPC-25-R6	5.1 (127)	6.0	9.3
UPC-26CR8	6.05 (152)	8.0	13.2

\* per ADC Flexible Duct Standard, based on flat thickness  
 \*\* per ASHRAE Fundamentals 1993 p. 20.19, based on curved thickness

Both the supply tubing and the sound attenuator should be supported at least every 6-feet (2-m) to prevent sagging.

## INSTALLATION OF UPC-25, UPC-26C AND UPC-26CR4



X: Look up in Table 2.

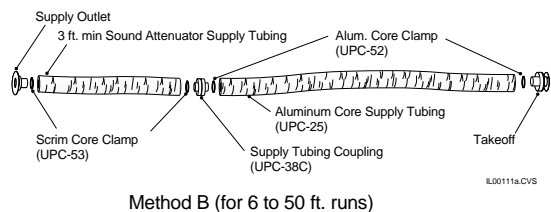
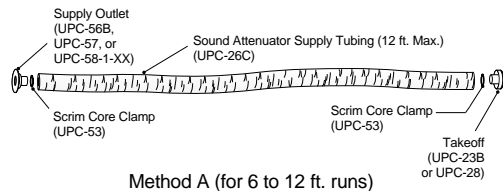
Tools and Parts required:

- Supply Tubing Clamps (Unico part no. UPC-52) or Scrim Core Clamps (Unico Part no. UPC-53)
- Clamp Pliers (Unico part no. UPC-54)
- Utility knife
- Wire Cutter (for sound attenuator install)
- UL-181B duct tape

**Table 2:** Clamp Look-up Table

X	Unico Part Number	Color	For use with
575	UPC-53	Silver	Sound Attenuator
605	UPC-52	Black	Supply Tubing

There are two methods for installing branch runs as depicted in the below Figures: Method A, only sound attenuator tubing (UPC-26C) is used. A minimum of 6-feet (183 cm) of sound attenuator tubing should be used for any short branch run. Method B, sound attenuator tubing is used in conjunction with aluminum core supply tubing (UPC-25). It is recommended that at least 3-feet (91 cm) of sound attenuator be used at the outlet end of each branch run in this case.



Connecting the supply tubing or the sound attenuator to the plenum requires a plenum take-off. Refer to Bulletin 30-50 for the plenum take-off instructions.

Joining two pieces of supply tubing requires a coupling (Unico part no. UPC-38C). A coupling is also required to connect the supply tubing to a sound attenuator.

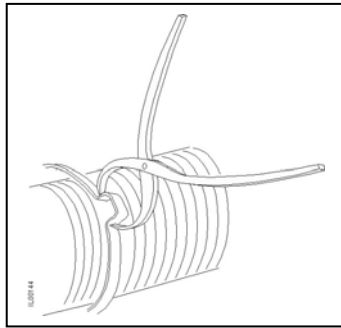
**DO NOT DISCARD PLASTIC TAPE RINGS ATTACHED TO THE TAKE-OFF AND COUPLINGS.** The plastic tape rings will prevent compressing the outer insulation and losing your insulating effect at the connection. Condensation may form on the exterior of the duct if the tape ring is not used.

**STEP 1.** Cut a length of tubing long enough to reach both ends without stretching or placing undue stress on the tubing or connections. The minimum bend radius of the tubing is 6-inches (152-mm).

**STEP 2.** Pull back the insulation of the tubing about 4-inches (102-mm) to expose the inner aluminum or nylon core. Slip a supply or scrim core clamp over the outside of the core. Then slip the core over the end of the take-off or coupling.

*NOTE: "605" or "575" is stamped on the edge of the clamp for the supply tubing or the sound attenuator, respectively.*

**STEP 3.** Position the clamp and tubing over the ridge or dimple before tightening clamp to prevent the duct from slipping off. Using the clamp pliers, crimp the clamp "ear" to tighten the clamp. Be sure that the pliers reach under the clamp so that the flat portion of the ear is not bent. Crimp with sufficient force to close the clamp but not so much as to cut the clamp.



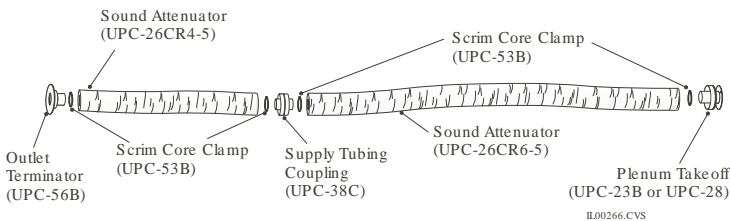
**ALTERNATE** (for supply tubing installation only): If clamps are not available, use two self-tapping screws to secure the aluminum core to the take-off or coupling.

**STEP 4.** (for supply tubing installation only) Seal the core by wrapping with aluminum tape listed and labeled in accordance with UL-181A and marked "181A-P".

**STEP 5.** Stuff the insulation and outer jacket under the tape ring as best you can. Then seal the outer jacket to the tape ring with tape listed and labeled in accordance with UL-181B and marked "UL-181B-FX".

**INSTALLATION OF UPC-26CR6 AND UPC-26CR8**

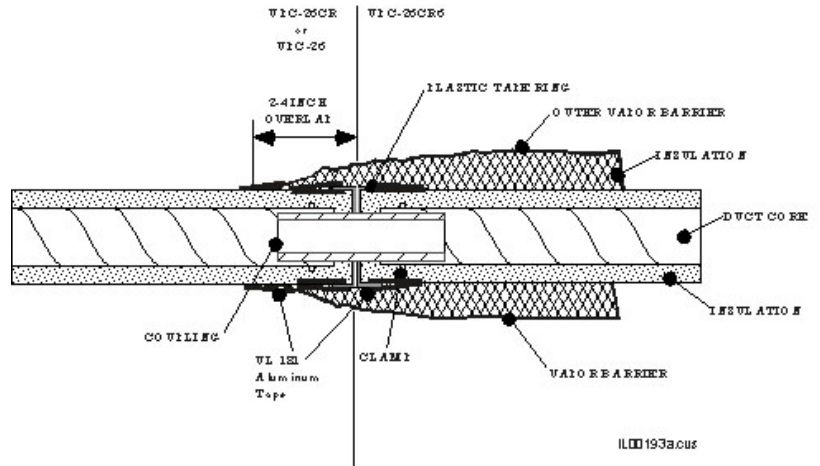
The R-6.0 duct will not compress enough to push through the 4-inch hole for the supply outlet. Connect a 2 ft. (610 mm) length of R-4.2 duct



**Figure 1. Connection of R-4.2 duct to R-6 duct**

to the outlet and couple it to the R-6.0 duct. The R-4.2 duct will pass through the 4-inch hole. If R-6.0 duct is to be maintained throughout the entire length of attenuator, wrap an additional 1-inch fiberglass blanket

around the R-4.2 duct after the supply outlet has been attached to the surface.



**Figure 2. Detail of Duct Connection**

**INSTALLATION OF UPC-35-15, TAKEOFF BALANCING ORIFICE**

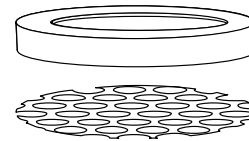
**Contents**

- 15 Each ---UPC-30 Caps ----- 15% Reduction
- 5 Each ---- UPC-31 Perforated disk ---35% Reduction
- 5 Each ---- UPC-32 Perforated disk ---50% Reduction

This kit offers a means to balance the system at the plenum takeoff. Placing the orifice at the take-off allows the sound attenuator duct to remove any noise caused by its restriction. When the take-offs are difficult to reach, balance the system at the outlets (UPC-36-15).

For small rooms or when only a partial outlet is required, add a balancing orifice. They reduce airflow for the individual branch runs to better balance the air supplied to rooms for the cooling and heating loads. Upon completing the individual room heat gain and heat loss calculations and determining the number of outlets, the runs requiring orifices should have been determined allowing for 15%, 35%, or 50% reduction in air flow. Use balancing orifices sparingly to maximize the airflow.

**UPC-35-30**



**UPC-31 35% Reduction (Perf. disk)  
or  
UPC-32 50% Reduction (Perf. disk)**

**Figure 3. Installation of Takeoff Balancing Orifice**



## INSTALLATION OF UPC-36-15, OUTLET BALANCING ORIFICE

### Contents

5 Each ----- 5/16" diameter hole ----- 50% Reduction

5 Each ----- 1-1/8" diameter hole -----35% Reduction

5 Each ----- 1-7/16" diameter hole ---15% Reduction

15 Each ----- Caps to fit over balancing orifice for winter  
shut-off plugs

Simply plug the appropriate orifice into the opening. These orifices replace the normal winter plug, so a larger winter cap is included. To install the larger cap, turn it over so it covers the lip of the orifice as shown in fig 4.

For small rooms or when only a partial outlet is required, add a balancing orifice. Use balancing orifices sparingly to maximize the airflow.

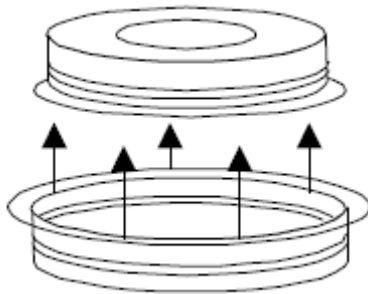


Figure 4. Installation of Outlet Balancing Orifice