SELECTION PROCEDURE & GENERAL INFORMATION

Example of how to size a DSV using the following parameters:

1. Max cold airflow is 500 CFM and the Min cold airflow is 250 CFM.
2. Max hot airflow is 250 CFM and the Min hot airflow is 100 CFM.
3. Inlet static pressure is 1.0" with maximum downstream static pressure drop of 0.2".
4. Radiated NC to be less than 24 and the Discharge NC to be less than 28.

Step 1 - Determine available inlet sizes

Cold Deck: Compare Max and Min airflow to ranges found on page 35. Sizes 06 and 07 both fall within the published ranges.

Hot Deck: Compare Max and Min airflow to ranges found on page 35. Sizes 05 and 06 both fall within the published ranges.

Step 2 - Check for sufficient static pressure

Cold Deck: For size 06 at 500 CFM, static pressure drop is 0.156 from page 31. For size 07 at 500 CFM, static pressure drop is 0.083. Unit static pressure drop is then added to the downstream static pressure drop and compared to the inlet static pressure. The sum of pressures for both the size 06 and the 07 are less than the inlet static pressure available. Therefore, both are still valid possibilities.

Hot Deck: For size 05 at 250 CFM, static pressure drop is 0.102 from page 31. For size 06 at 250 CFM, static pressure drop is 0.040. Unit static pressure drop is then added to the downstream static pressure drop and compared to the inlet static pressure. The sum of pressures for both sizes is less than the inlet static pressure available. Therefore, all are still valid possibilities.

Step 3 - Check for appropriate sound levels

Cold Deck: The acoustical requirements are checked against the radiated and discharge tables on page 31. For size 06, the discharge NC is approximately 24 and the radiated NC is 25. For size 07, the discharge NC is less than 23 and the radiated NC is less than 22. The size 07 is the only size to meet acoustical performance.

Hot Deck: The acoustical requirements are checked against the radiated and discharge tables on page 31. For size 05, the discharge and the radiated NC is less than 21. For size 06, the discharge and the radiated NC are both approximately 20. All sizes meet the NC requirements. Although the size 06 could be selected, the size 05 would be the best choice because the unit is operating within the mid-range of the recommended performance.

Comments on oversizing a terminal unit

Typically when increasing a unit size, the static pressure and sound power levels both decrease. Although this can be beneficial in some applications, caution needs to be taken when oversizing a unit. The damper controls the airflow most effectively in the upper range of the published airflow. The Tuttle & Bailey Flo-Cross® works very well at the lower range of airflows when compared to other sensors within the industry, but if the airflow falls below the published range, the controller may fail to maintain the target airflow consistently.