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TECHNICAL BULLETIN

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Model **EZT**
AIR TERMINAL CASING LEAKAGE

General

Typical air terminal specifications limit the amount of acceptable air leaks in the sheet metal cabinet or casing as a percentage of some flow at a given static pressure in the casing. Often, the allowable leakage is typically based on SMACNA duct leakage classification ratings (http://www.smacna.org/documents/papers/ductleakage.pdf) for the installation.

A typical specification may read “air terminal casing leakage shall not exceed 3% at 1 Ps”. Written in this manner, there is some difficulty in discerning what the architect / engineer really requires. Further, accessories such as hot water coils and access doors are additional sources of potential air leakage, and should be specifically included or excluded.

Percentage of What?

A percentage rating requires that some value of flow is multiplied by the percentage specified to arrive at an absolute value of air “leakage” in cfm (ft3/ min), e.g. 3% of 500 cfm = 15 cfm. This is easily calculated if we know what value to multiply by the percentage.

The percentage rating might be applied to:

1. The ***maximum design flow rate*** for each specific terminal unit feeding a specific zone. The problem with this rating method is that the allowable leakage rate will be a moving target for air terminals of the same size, yet they are manufactured in the same manner, and will leak at about the same rate. This implies that for each size (inlet diameter), the air terminal scheduled should be surveyed for the unit with the lowest “maximum designed flow rate”, and multiplied by the allowed percentage, which sets the allowable rate for ALL units of equal size. This intuitively does not make much sense, and can unknowingly add additional costs for the system.

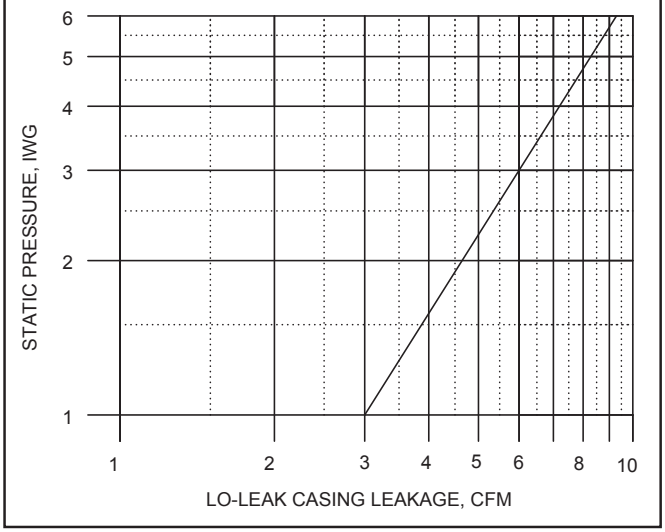
2. The ***maximum rated capacity*** of the terminal unit. The basis for this rating is usually either an assumed inlet velocity, e.g. 3,000 fpm, or the flow rate for a 1” inlet sensor signal. These ratings might be somewhat arbitrary, but do allow for a leakage rating system that defines an ***absolute cfm value*** for the leakage for each size air terminal.

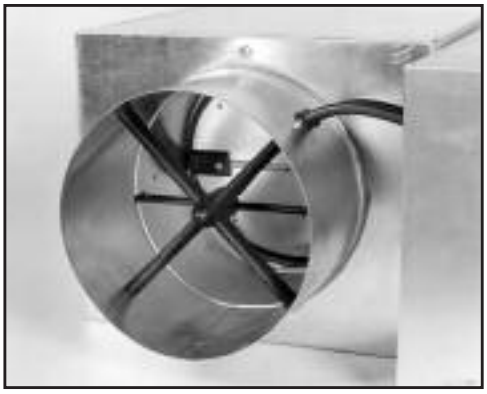
Suggested Specification

To avoid conflicts related to interpretation, we recommend that the casing leakage specification state the maximum allowable “cfm” @ “static pressure”, e.g. 4 cfm @ 1” Ps, to also include access doors and the hot water coils attached to the air terminals, if applicable.

Anemostat single duct Model EZT ***Lo-Leak*** construction is a sealant treatment to reduce casing leakage as shown in graph 1 below for all sizes 5"ø-16"ø. Extensive testing shows that leak rates are minimally dependent upon the casing size, i.e. the amount of easily sealed seams/joints, and are dictated by fixed sources of leakage – around the damper shaft seal/bearing, access door, and coil tubes. These leakage rates are not only for the basic unit, but INCLUDE double cam access doors AND 2 row hot water coils.

Graph 1





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Lo-Leak construction
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