

PRICE® SINGLE-DUCT VAV BOX SIZING GUIDE



DELREN HVAC, INC.
 100 West Narberth Terrace
 Collingswood, NJ 08108
 P: (856) 541-1776 / (215) 467-7000
www.delren.com

Price's All-In-One Selection Software is a great tool for engineers and designers to select various products. It's strongest suits are the VAV box and silencer selection sections. The VAV box section, in particular, will help with hot water coil selection which is important because the results in the software are often at odds with what is scheduled by the engineer.

While the software selects box sizes as well, this can be cumbersome if there are multiple box sizes and multiple coil options for you to select from. By selecting the box size manually, one can make the process of selecting the right coil more manageable.

Sizing a VAV box seems simple but often the scheduled boxes on plans have not taken into account pressure drop and noise. Using a max of NC-30 and specific pressure drops as limits, the table below attempts to compile a realistic cfm range for each given box size.

Box inlet size (in)	Min CFM allowed	Max CFM			Max Static Pressure drop	Max NC	Inlet Static Pressure
		No HW coil	1-row HW coil	2-row HW coil			
4	40	155	160	160	0.3"	30	1"
5	60	360	360	380	0.3"	30	1"
6	65	450	400	320	0.3"	30	1"
7	95	800	730	540	0.4"	30	1"
8	125	900	900	600	0.4"	30	1"
9	160	1400	1300	850	0.4"	30	1"
10	210	1800	1300	850	0.4"	30	1"
12	300	2500	2050	1350	0.5"	30	1.5"
14	430	3500	3000	2000	0.5"	30	1.5"
16	575	3700	3600	2400	0.5"	30	1.5"
24x16	1185	3000	3300	3700	0.5"	30	1.5"

Notes:

1. Min CFM column represents the lowest cfm a DDC controller can accurately read for that box size.
2. Max CFM values do not necessarily decrease with the addition of a HW coil for every box size due to static regain issues and whether the noise or static pressure drop was the responsible limiting factor.
3. Downstream static pressure was set at 0.25" for all selections.
4. Oversized housings (available but not used in these selections) can reduce noise and pressure drop.

As the table above shows, the amount of air that a single-duct VAV box can realistically handle is greatly influenced by noise and static pressure drop. While a selection sheet might show a much wider range of cfm's that a particular sized box can handle, this is usually more theoretical than practical. Obviously, the max cfm's above are not written in stone and if your system can handle more noise or a higher pressure drop, than you can certainly add more air to a box. But if the noise and pressure drop values that were used as limits in this data is what you typically use, than this guide will help you size your boxes more accurately.

For more information, please contact Rob Kugler (rkugler@delren.com)