

Tech Tip Duct Sizing Chart



“Hey Rick, I heard that flex duct doesn’t move the same amount of air as metal duct, and my company primarily installs flex duct...is that bad?”

“No,” replied Rick “but all ductwork needs to be sized differently and many of the rules have not been fully brought into practice.”

“For example, most techs will tell you that a 6” duct will provide about 100 CFM.”

“While this may be true, in most cases, for a metal Supply air duct, it is not for a metal Return, nor a 6” flexible duct on Supply or Return.”

While a duct sizing calculator built for a specific type of ductwork is the best possible method for sizing ducts, the attached chart can be used in most single story homes with a centrally located unit, and reasonable length duct runs.

Filter Grille H x W x 2 = CFM Non-Filter Grille H x W x 3 = CFM					
Metal			Flex		
Round Duct Size	Supply Air CFM	Return Air CFM	Round Duct Size	Supply Air CFM	Return Air CFM
4	33		4	20	
5	58	45	5	42	32
6	93	72	6	68	52
7	145	111	7	105	81
8	210	155	8	150	115
9	275	210	9	200	151
10	365	280	10	265	205
12	600	450	12	430	330
14	900	700	14	650	500
16	1300	980	16	950	730
18	1750	1350	18	1275	975
20	2300	1800	20	1750	1300

CFM numbers above are based on a friction rate of .08 supply and .05 return

Most technicians are skeptical about these numbers, especially on the Return air side of the system. For instance a 2.5 ton system (Approximately 400 CFM per ton) would require (2) 14” flexible return ducts or (1) very short flexible 18” duct to move the 1000 CFM required by the 2.5 ton system.

As systems increase in efficiency, the tolerances of “how we have always done it” will no longer be adequate.

Note also the Return air grille sizing formula at the top of the chart.

“For the same 2.5 ton system with a filter grille, the grille size would need to be what size?”

Asked Rick

“We usually use a 20 x 20 for 2.5 ton.” Said the tech

$$20 \times 20 \times 2 = 800$$

“800 CFM... Well that’s big enough for a 2 ton, but a 20 x 25 may be a better choice.”

$$20 \times 25 \times 2 = 1000$$

“Wow,” said the tech, “I will have to start making some changes to my installs.”

“Don’t just take my word for it” said Rick. “Start using your manometer and check your external static pressure and prove it to yourself.”