## **RECTANGULAR DUCT ATTENUATORS**

## Example: How to select a rectangular attenuator

For this scenario, noise from a car park exhaust fan results in a noise level of 83dB(A) in the car park it ventilates. The exhaust air volume passing through the fan is 7m<sup>3</sup>/s. The user would like to have a target noise level in the carpark of 60dB(A). Also, the attenuator can be no longer than 2200mm long, is not exposed to the weather, and can have no more than 20Pa of air flow resistance through it to avoid affecting the fan selection.

- Select the appropriate noise reduction data column. Exhaust fan noise would be classified as 'General Fan noise'.
- Choose the attenuator series required. Both the RT and R3T models would be appropriate as the internals of the attenuator are not exposed to the weather.
- The noise reduction required is found by subtracting the target noise level from the current noise level.
  83dB(A) Current noise level 60dB(A) Target noise level = 23dB(A) reduction required.

Under the "General fan noise dB(A) reduction" columns for the attenuator series (RT & R3T) chosen earlier, follow the line sequence ( until the reduction noise (23 dB(A)) is found or marginally exceeds this number.

To achieve a 23 dB(A) noise reduction using the RT series, the following length and % open area combinations can be used; 2100mm/37%, 1800mm/33% and 1500mm/26%. For our example going forward, we will use the 2100mm long, 37% open area option. The selection closest to the top is normally the best from a price perspective. To evaluate other options, repeat the steps from a onwards.

ACOUSTIC		General fan noise dB(A) reduction				Low Frequency biased noise dB(A) reduction				Product Codes			
DATA	MANCE												
Length mm	% open area	R3T Series	2 RT Series	RTQS Series		R3T Series	RT Series	RTQS Series		R3T Series	RT Series	rtQS Series	-
	26		4 32	28			24	19			RT07G	RT07GQS	
2400	33	25	28	24		22	19	1/		R3115G	RI10G	RI10GQS	_
	37	22		22		20	1/	16		R311/G	RI12G	RI12GQS	_
	43		22	19		1/	16	15		R3122G	RI15G	RI15GQS	-
	50		19	17		15	14	13		R3130G	RI20G	RI20GQS	
	26		<b>3</b> 0	26		0	21	18			RT07F	RT07FQS	Lengt
4	33	24	26	23	-	19	1/	16		R3115F	RI10F	RI10FQS	(F)
2100	37	21	3 23	20		18	16	15		R311/F	5)RI12F	RT12FQS	2100
	43		21	18		16	15	14		R3122F	RI15F	RT15FQS	_
	50	12	1/	15		14	13	12		R3130F	RT20F	RT20FQS	
1800	26		27	24			18	16			RT07E	RT07EQS	
	33	22	24	21		17	15	14		R3T15E	RT10E	RT10EQS	_
	37	19	21	19		16	14	13		R3T17E	RT12E	RT12EQS	-
	43	16	19	16		14	13	12		R3122E	RI15E	RI15EQS	_
	50	12	16	14		12	11	11		R3130E	RI20E	RT20EQS	
1500	26		<b>4</b> 25	22			15	14			RT07D	RT07DQS	_
	33	20	22	19		15	13	12		R3T15D	RT10D	RT10DQS	
	37		20	16		14	12	11		R3117D	RI12D	RI12DQS	_
	43		18	15		12	11	11		R3122D	RI15D	RI15DQS	_
	50		14	12		10	10	9		R3130D	RT20D	RI20DQS	
1200	26		<b>A</b> 22	19			12	11			RT07C	RT07CQS	_
	33	17	19	17		12	11	10		R3T15C	RT10C	RT10CQS	_
	37	15	17	14		11	10	9		R3117C	RI12C	RI12CQS	
	43		16	13		10	9	9		R3122C	RI15C	RI15CQS	_
	50	L 9/	13	11		9	8	8		R3130C	RT20C	RI20CQS	
900	26		18	15			10	8			RT07B	RT07BQS	_
	33	14	16	13		10	8	7		R3115B	RI10B	RI10BQS	_
	37	12	14	11		9	8	6		R3117B	RI12B	RI12BQS	
	43		13	10		8	7	6		R3T22B	RI15B	RT15BQS	
	50		10	8			6	5		R3T30B	RI20B	R120BQS	
600	26		14	10			6	4			RT07A	RT07AQS	_
	33	10	11	9		7	5	4		R3T15A	RT10A	RT10AQS	_
	37	9	▼ 10	8		6	5	4		R3T17A	RT12A	RT12AQS	_
	43		9	7		6	5	3		R3T22A	RT15A	RT15AQS	
	50	6	7	6		5	4	3		R3T30A	RT20A	RT20AQS	

Acoustic performance tests to ISO7235-2003 that have been simplified to single digit noise reduction levels are shown in table above. Detailed attenuator insertion loss (SIL) spectrums based on testing to the BS4718-1971 Standard can be obtained using the Fans by Fantech Product Selection Program.

## **RECTANGULAR DUCT ATTENUATORS**

Select the product code which is aligned with the 2100mm long, 37% open, 23 dB(A). In this case the product code is RT12F.

6 Refer to the correct pressure loss (20Pa) graph and attenuator series (RT Series for the RT12F model)

Traw a vertical line on the graph that corresponds to the length of the attenuator model chosen at step 4 (i.e. 2100mm long or 'F' length code). The face velocity on the RT12../QS curve that corresponds to the model is 3.3m/s



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## NOISE CONTROL PRODUCTS H-7

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