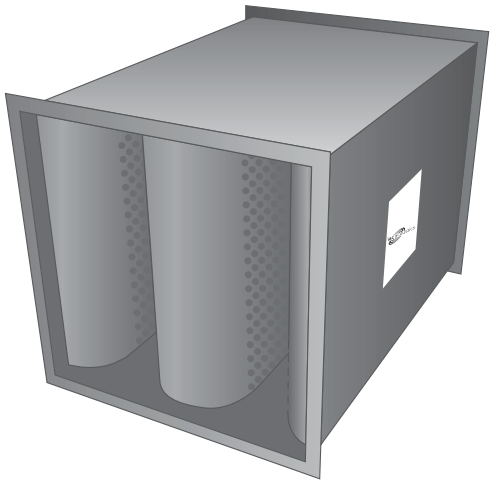
Quiet-Duct® Silencer Type: LFM

Low Frequency Silencers with Forward and Reverse Flow Ratings



Standard modular widths are multiples of 300mm, other widths are also available.

LFM silencers are advantageous where low frequency, particularly in the third and fourth octave bands; DIL requirements are high in HVAC systems. In some applications high frequency attenuation may be provided by the system components or may not be needed.

Supplied as Standard

- Aerodynamic inlet and discharge to splitter elements to reduce pressure drop and conserve energy
- Perforated galvanised steel facings to all splitter elements to protect acoustic media from damage and erosion

Designating Silencers: Example

Model: 5LFM-600-600

Length	Type	Width	Height
1500mm	LFM	600mm	600mm

Weight

Average weight 80kg/m^3

Self-Noise Power Levels dB re: 10^{-12} Watts (for a 0.37m^2 face area silencer)

IAC LFM Model	Octave Band	1	2	3	4	5	6	7	8
	Hz	63	125	250	500	1K	2K	4K	8K
	Silencer Face Velocity, m/s								
LFM All Lengths	-15	64	62	64	66	65	64	66	62
	-10	53	50	54	56	56	59	58	51
	-5	42	40	43	45	47	46	37	27
	+5	47	34	36	35	40	37	27	20
	+10	54	52	58	56	51	56	55	50
	+15	68	64	64	63	61	63	66	63

Face Area Adjustment Factors (add or subtract from Lw values above)

Quiet-Duct® Face Area, m^2*	0.05	0.09	0.19	0.37	0.74	1.5	3.0	6.0	12.0
Lw Adjustment Factor, dB	-9	-6	-3	0	+3	+6	+9	+12	+15

* For intermediate face areas, interpolate to the nearest whole number

Aerodynamic Performance

IAC Model	Length (mm)	Static Pressure Drop N/m^2							
LFM	900	12	17	22	30	37	47	57	67
	1500	12	17	25	32	40	50	60	72
	2100	12	17	25	32	42	52	62	75
	3000	15	20	30	37	47	60	72	85
Silencer Face Velocity, m/s		2.54	3.05	3.56	4.06	4.57	5.08	5.59	6.1

Dynamic Insertion Loss (DIL) Ratings: Forward (+) / Reverse (-) Flow

IAC LFM Model (length in mm)	Octave Band	1	2	3	4	5	6	7	8
	Hz	63	125	250	500	1K	2K	4K	8K
	Silencer Face Velocity, m/s	Dynamic Insertion Loss, dB							
3LFM (900)	-10	6	9	17	22	19	14	12	10
	-5	6	8	16	21	18	13	12	11
	0	5	8	16	21	18	13	12	11
	+5	4	7	15	20	17	13	11	10
	+10	4	7	14	19	17	12	11	10
4LFM (1200)	-10	8	13	22	27	24	16	13	12
	-5	8	12	21	26	24	15	14	12
	0	7	11	21	26	24	15	14	12
	+5	6	10	19	25	23	15	13	12
	+10	6	10	18	24	23	15	13	11
5LFM (1500)	-10	9	16	26	32	29	17	13	13
	-5	9	15	26	31	30	17	15	13
	0	9	14	25	30	29	17	15	13
	+5	8	13	23	29	28	17	14	13
	+10	7	12	22	28	28	17	14	12
6LFM (1800)	-10	11	17	29	38	34	19	15	14
	-5	11	17	29	37	35	19	17	14
	0	11	16	28	36	34	20	17	14
	+5	10	15	27	35	33	20	16	14
	+10	9	14	25	34	33	20	16	14
7LFM (2100)	-10	12	18	32	44	39	21	16	14
	-5	12	18	32	43	39	21	18	15
	0	12	17	31	42	39	22	18	15
	+5	12	16	30	41	38	22	17	14
	+10	11	15	28	39	38	23	17	15
8LFM (2400)	-10	13	20	35	46	43	23	17	15
	-5	13	20	35	46	43	23	19	16
	0	13	19	34	45	43	24	19	16
	+5	13	18	33	44	42	24	18	15
	+10	12	17	31	43	42	25	19	16
9LFM (2700)	-10	15	22	38	49	47	24	19	15
	-5	15	22	39	48	46	25	21	16
	0	15	21	38	48	46	26	21	16
	+5	14	20	36	47	46	26	20	15
	+10	13	18	35	46	46	26	20	16
10LFM (3000)	-10	16	24	41	51	51	26	20	16
	-5	16	24	42	51	50	27	22	17
	0	16	23	41	51	50	28	22	17
	+5	15	22	39	50	50	28	21	16
	+10	14	20	38	50	50	28	22	17

Note

- The tabulated airflow in m/s is based upon tests conducted in the IAC Acoustics R&D Laboratory, in accordance with applicable sections of internationally recognised airflow test codes. These codes require specific lengths of straight duct both upstream and downstream of the test specimen. Non-compliance with these codes can add from ½ to several velocity heads depending on specific conditions. The downstream measurements are made far enough downstream to include static regain. Therefore, if silencers are installed immediately before or after elbows, transitions or at the intake or discharge of a system, sufficient allowance to compensate for these factors must be included when calculating the operating static pressure loss through the silencer. See pages 10 & 11 for further details.
- Silencer Face Area is the cross-sectional area at the silencer entrance or exit
- Face velocity (FV) in m/s is the airflow in m^3/s divided by the silencer face area in m^2
- Pressure drop (PD) for any face velocity can be calculated from the equation: PD = (Actual FV / Catalogue FV)^2 x (Catalogue PD)