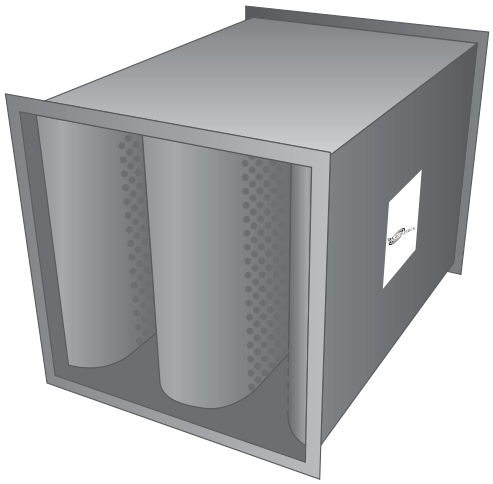
Clean-Flow™ Quiet-Duct® Silencer Type: HLFS

Low Frequency with Forward and Reverse Flow Ratings



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

HLFS silencers are advantageous where low frequency DIL requirements are high in HVAC systems. The acoustic fill is totally encapsulated to prevent erosion or entrainment of particulate. A honeycomb acoustic stand-off provides additional protection and performance. Ideal for hospitals, laboratories and clean rooms.

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: 5HLFS-600-450

Length	Type	Width	Height
1500mm	HLFS	600mm	450mm

Self-Noise Power Levels dB re: 10^{-12} Watts (for a 0.37m² face area silencer)

IAC HLFS 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	Self-Noise Power Levels, dB							
HLFS All Lengths (mm)	-10	58	54	58	61	62	62	65	63
	-7.5	51	49	53	56	56	59	60	53
	-5	45	42	45	43	45	49	44	37
	+5	46	42	45	43	45	49	44	37
	+7.5	56	54	57	56	52	56	57	51
	+10	68	64	65	66	61	61	64	61

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

Quiet-Duct® Face Area, m²*	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/m²							
HLFS	900	10	12	17	22	27	35	42	50
	1500	10	15	20	25	32	40	47	55
	2100	10	15	20	25	32	40	50	57
	3000	10	15	22	27	35	45	52	65
Silencer Face Velocity, m/s		1.27	1.52	1.78	2.03	2.29	2.54	2.79	3.05

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

IAC HLFS 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							
3HLFS (900)	-10	7	13	15	20	19	18	16	10
	-5	7	12	14	20	19	18	15	10
	0	9	14	15	21	19	18	15	11
	+5	7	11	14	20	18	15	15	10
	+10	7	11	14	18	17	16	14	9
4HLFS (1200)	-10	9	16	19	23	22	20	18	12
	-5	9	14	19	23	22	20	17	12
	0	11	15	19	24	22	20	17	13
	+5	10	14	19	23	22	18	17	12
	+10	10	13	18	22	21	18	16	11
5HLFS (1500)	-10	11	18	22	26	25	21	19	13
	-5	11	16	23	26	25	21	19	14
	0	12	16	23	27	25	21	19	14
	+5	12	16	23	26	25	20	18	14
	+10	13	15	22	25	24	20	17	13
6HLFS (1800)	-10	13	18	23	28	28	25	21	15
	-5	13	17	23	28	28	25	21	15
	0	14	17	23	28	27	24	20	15
	+5	14	17	23	26	26	22	18	14
	+10	14	18	23	26	25	22	17	13
7HLFS (2100)	-10	14	17	23	29	31	29	22	16
	-5	15	17	23	30	31	29	22	16
	0	15	18	23	28	29	27	20	15
	+5	15	18	22	25	27	24	18	14
	+10	15	20	23	26	26	23	17	13
8HLFS (2400)	-10	15	19	25	31	33	32	24	17
	-5	15	19	25	32	34	31	24	17
	0	15	20	25	30	32	30	22	16
	+5	15	20	25	28	31	28	21	15
	+10	16	21	25	29	30	28	21	15
9HLFS (2700)	-10	16	22	27	33	36	34	26	18
	-5	15	21	28	34	36	34	26	17
	0	15	21	28	32	35	34	25	18
	+5	15	21	27	31	34	33	24	17
	+10	16	21	26	31	33	32	24	16
10HLFS (3000)	-10	17	24	29	35	38	37	28	19
	-5	15	23	30	36	39	36	28	18
	0	15	23	30	34	38	37	27	19
	+5	15	23	30	34	38	37	27	18
	+10	17	22	28	34	37	37	28	18

Note

- The tabulated air flow in m^3/s is based upon tests 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 0.5 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 the system, sufficient allowance to compensate for these factors must be included when calculating the operating static pressure loss through the silencer. See pages 10 and 11 for further details.
- Face Velocity is the airflow (m^3/s) divided by the Face Area (m^2)
- Pressure drop for any face velocity can be calculated from the equation: PD=(Actual FV/catalogue FV)^2 x (Catalogue PD)