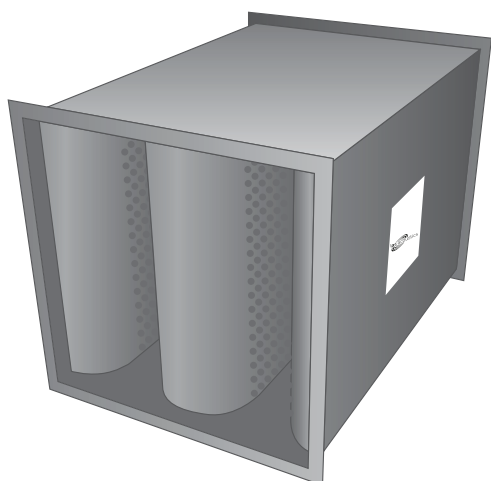


# Quiet-Duct® Silencer Type: SM

With Forward and Reverse Flow



### 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: 5SM-660-600

Length	Type	Width	Height
1500mm	SM	660mm	600mm

### Weight

Average weight 95kg/m<sup>3</sup>

Standard modular widths are multiples of 330mm, other widths are also available.

## Self-Noise Power Levels dB re: 10<sup>-12</sup> Watts (for a 0.4m<sup>2</sup> face area silencer)

IAC SM 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								
SM All Lengths	-10	66	61	60	64	61	63	65	61
	-5	52	50	49	49	54	55	50	35
	-2.5	68	39	38	34	47	47	35	<20
	+2.5	33	24	31	27	27	30	<20	<20
	+5	52	44	46	44	42	44	39	29
	+10	71	65	60	60	57	59	58	53

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

Quiet-Duct® Face Area, m <sup>2</sup> *	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.4	12.8
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 <sup>2</sup>							
		8	13	19	25	33	42	52	63
SM	900	8	13	19	25	33	42	52	63
	1500	10	15	22	29	39	49	60	73
	2100	11	17	25	34	44	56	69	99
	3000	13	20	29	40	52	65	81	116
Silencer Face Velocity, m/s		2.03	2.54	3.05	3.56	4.06	4.57	5.08	5.59

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

IAC SM 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							
3SM (900)	-10	6	10	18	30	35	30	20	12
	-5	5	10	16	30	34	30	21	13
	0	5	9	15	29	34	30	22	14
	+5	5	8	14	27	33	30	23	15
	+10	5	7	13	25	32	30	23	15
4SM (1200)	-10	7	14	21	36	41	35	25	15
	-5	7	13	20	36	40	36	27	16
	0	7	12	19	35	40	36	28	17
	+5	6	12	18	34	39	36	29	18
	+10	5	11	17	32	39	36	29	18
5SM (1500)	-10	8	17	24	42	46	39	30	18
	-5	8	16	24	41	46	41	32	18
	0	8	15	23	40	46	41	33	20
	+5	6	15	21	40	45	42	34	21
	+10	5	14	20	38	45	42	34	21
6SM (1800)	-10	9	19	29	44	48	41	33	20
	-5	9	18	28	43	48	43	35	21
	0	9	17	27	43	48	43	36	23
	+5	7	16	25	43	47	44	37	25
	+10	7	15	24	41	47	45	37	25
7SM (2100)	-10	10	20	33	46	50	43	35	22
	-5	10	19	32	45	49	45	38	23
	0	10	18	30	45	49	45	39	26
	+5	8	17	29	45	49	46	39	28
	+10	8	15	28	44	49	47	39	29
8SM (2400)	-10	11	21	35	47	50	45	37	25
	-5	11	21	34	46	50	47	40	26
	0	11	20	33	46	50	47	41	29
	+5	9	18	32	46	50	48	41	31
	+10	9	16	31	45	50	48	41	32
9SM (2700)	-10	12	23	38	47	51	48	39	27
	-5	12	23	37	47	50	48	42	28
	0	11	21	36	47	51	48	43	31
	+5	11	20	35	47	51	49	43	33
	+10	10	17	34	47	51	50	43	35
10SM (3000)	-10	13	24	40	48	51	50	41	30
	-5	13	25	39	48	51	50	44	31
	0	12	23	39	48	52	50	45	34
	+5	12	21	38	48	52	51	45	36
	+10	11	18	37	48	52	51	45	38

Quiet-Duct® Rectangular SM Silencer

#### 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 m³/s divided by the silencer face area in m²
- Pressure drop (PD) for any face velocity can be calculated from the equation:  $PD = (\text{Actual FV} / \text{Catalogue FV})^2 \times (\text{Catalogue PD})$