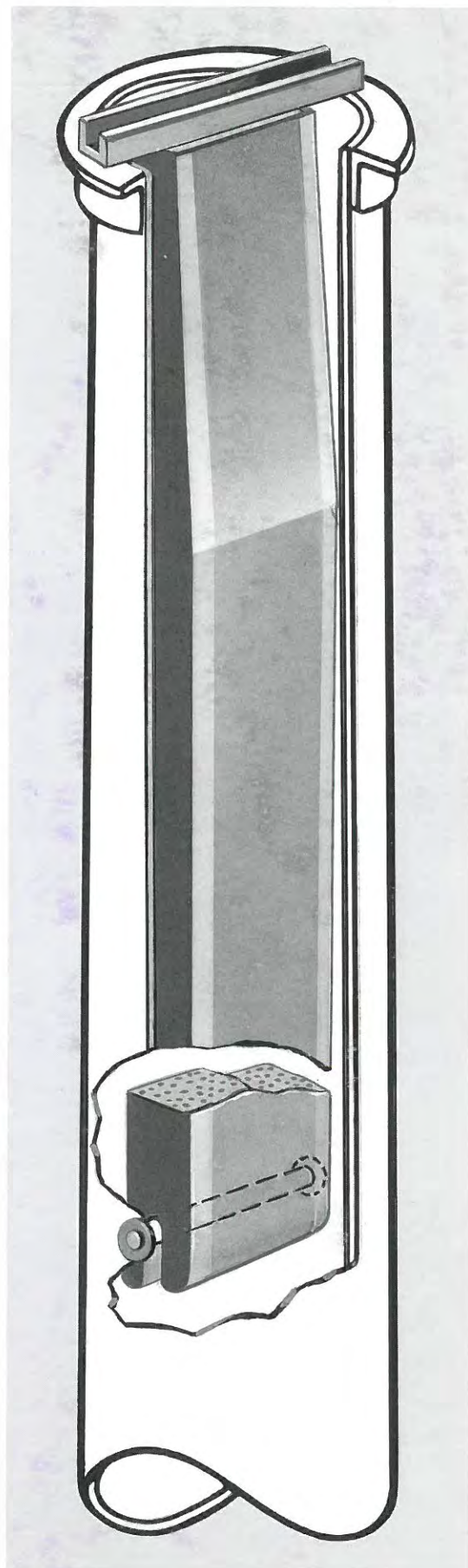


Aero- Acoustic Stack- Stuffer Silencers



*Made With Pride
In The U.S.A.*

Aero-Acoustic Stack-Stuffer Silencers

Often, noise generating machinery such as high pressure fans, blowers, scrubbers, combustion chambers, etc., discharge both air and noise to the atmosphere through a stack. Usually, this noise is low pitched and can be eliminated by an AeroAcoustic "Stack Stuffer" silencer.

This silencer is designed to be installed inside a circular cross section stack as shown in figures 1 and 2. If the noise problem is anticipated, it can be installed in the stack at the time the stack is built. If noise emitted from an existing stack becomes a problem, a Stack-Stuffer can be dropped down and fastened into the existing stack.

In either case, it is an economical solution to the noise problem because the materials and shipping costs of the silencer outer shell are eliminated. The stack itself takes the place of the silencer shell. Thus, you pay only for actual acoustic material.

Stack-Stuffer silencers for use in circular cross section stacks can be supplied with either rectangular or circular cross sections as shown in the tables.

The designation of the stack stuffer indicates the ID of the stack in which it will be installed, the shape of the stack stuffer (i.e., rectangular or circular), its acoustic and airflow performance, and its length as follows:

Rectangular units, which have better low frequency performance are designated by stack inside diameter—SS-model—i.e., a 48" SSA 3 is a rectangular model, fits a 48" ID stack, has the acoustic performance shown on Table I, the aerodynamic performance of Table III and the dimensions and weight shown in Table IV.

Circular cross section units which have better high frequency performance are designated by stack inside diameter—SSC-model—i.e., a 48" SSCC-3 fits a 48" ID stack, has the acoustic performance shown in Table II, the aerodynamic performance of Table III, and the dimen-

sions and weights given in Table V.

Acoustic performance of both models SS and SSC will vary with stack size. Actual performance at the actual stack diameter can be extrapolated from Tables I and II.

PRESSURE DROP — PER TABLE III

The duct-in duct-out arrangement applies to a stack stuffer installed in a run of ductwork with at least 5 diameters of straight duct, of the same diameter, downstream of the stack stuffer.

The duct to free discharge arrangement applies to a stack stuffer installed at the termination of a duct.

Please note that most of our splitter silencers per Bulletin B-333 can also be supplied as Stack-Stuffers for both circular and rectangular cross section stacks. These are useful when a large value of insertion loss at high frequencies is required with a large diameter stack.

TABLE I
Acoustic Performance Models SSA3, SSA5, SSB3, SSB5, SSC3, SSC5, Rectangular Stack Stuffers 60°F Air

Model	Octave Band, Center Frequency, KHz							
	.063	.125	.25	.5	1	2	4	8
	Net Insertion Loss, db							
24" SSA3	3	6	12	22	27	20	12	8
50" SSA3	7	13	23	27	20	12	8	4
80" SSA3	10	20	25	21	13	9	5	3
24" SSA5	4	8	16	29	36	24	15	10
50" SSA5	8	16	30	37	25	16	11	7
80" SSA5	14	26	33	25	16	11	7	5
24" SSB3	4	9	16	24	32	24	14	8
50" SSB3	9	16	25	33	23	12	8	6
80" SSB3	14	21	29	27	17	11	7	5
24" SSB5	5	11	21	30	40	30	17	10
50" SSB5	11	21	31	41	30	18	11	7
80" SSB5	18	27	37	32	20	14	9	6
24" SSC3	5	11	19	26	32	17	10	8
50" SSC3	11	20	27	31	16	10	8	6
80" SSC3	16	24	30	22	12	9	7	5
24" SSC5	6	13	24	33	41	22	14	12
50" SSC5	13	24	34	40	21	13	11	8
80" SSC5	19	30	38	28	17	10	6	4

TABLE II
Acoustical Performance of Models SSCA, SSCB, SSCC, and SSCD, Circular Cross Section Stack Stuffers 60°F Air

Model	Octave Band, Center Frequency, KHz							
	.063	.125	.25	.5	1	2	4	8
	Net Insertion Loss, db							
24" SSCA-3	2	5	10	19	29	25	20	16
36" SSCA-3	4	8	15	25	28	22	18	14
30" SSCB-2	3	7	13	22	28	22	18	14
30" SSCB-3	4	9	17	28	36	28	23	18
50" SSCB-2	5	11	20	27	24	19	15	12
50" SSCB-3	7	14	25	34	31	24	19	15
20" SSCC-3	3	7	16	28	39	41	33	26
34" SSCC-3	9	19	31	41	39	32	25	19
20" SSCD-1	3	6	11	19	24	24	19	15
20" SSCD-3	6	11	21	36	45	43	36	28
40" SSCD-1	4	9	17	23	24	20	16	13
40" SSCD-3	9	18	31	43	43	36	29	22

TABLE III

ΔP based on dynamic pressure in approach duct.

$$q, \text{ inches of H}_2\text{O} = \left(\frac{\text{CFM}}{\text{Duct Area ft}^2} \right)^2 \times \text{density, lb/ft}^3 - (1,205,568)$$

Actual $\Delta P = \text{Pressure Coefficient} \times q$ ("H₂O)

PRESSURE COEFFICIENT

Model	duct-in duct-out	duct-in Free Discharge
SSA3	.72	1.36
SSA5	1.01	1.7
SSB3	1.22	2.22
SSB5	1.7	2.7
SSC3	2.27	3.7
SSC5	3.06	4.5
SSCD1	2.6	5.1
SSCB2	.82	1.95
SSCA3	.54	1.2
SSCB3	1.01	2.1
SSCC3	2.3	4.2
SSCD3	3.1	6.4

TABLE IV
Dimensions of Rectangular Stack Stuffers
Models SSA3, SSA5, SSB3, SSB5, SSC3, SSC5

Stack Diameter	"D"			"L"		
	Model	Length	Wgt. lb.	Model	Length	Wgt. lb.
24	24SSA 3	72"	145	24SSA 5	120"	235
	24SSB 3		170	24SSB 5		270
	24SSC 3		185	24SSC 5		295
26	26SSA 3	78"	180	26SSA 5	130"	290
	26SSB 3		210	26SSB 5		335
	26SSC 3		230	26SSC 5		370
28	28SSA 3	84"	215	28SSA 5	140"	345
	28SSB 3		250	28SSB 5		400
	28SSC 3		275	28SSC 5		440
30	30SSA 3	90"	285	30SSA 5	150"	455
	30SSB 3		310	30SSB 5		495
	30SSC 3		340	30SSC 5		545
32	32SSA 3	96"	330	32SSA 5	160"	525
	32SSB 3		360	32SSB 5		575
	32SSC 3		395	32SSC 5		630
34	34SSA 3	102"	380	34SSA 5	170"	605
	34SSB 3		415	34SSB 5		660
	34SSC 3		455	34SSC 5		730
36	36SSA 3	108"	435	36SSA 5	180"	695
	36SSB 3		485	36SSB 5		775
	36SSC 3		530	36SSC 5		850
38	38SSA 3	114"	485	38SSA 5	190"	775
	38SSB 3		545	38SSB 5		870
	38SSC 3		600	38SSC 5		960
40	40SSA 3	120"	550	40SSA 5	200"	880
	40SSB 3		615	40SSB 5		980
	40SSC 3		670	40SSC 5		1070
42	42SSA 3	126"	600	42SSA 5	210"	960
	42SSB 3		670	42SSB 5		1070
	42SSC 3		800	42SSC 5		1280
44	44SSA 3	132"	680	44SSA 5	220"	1090
	44SSB 3		760	44SSB 5		1210
	44SSC 3		910	44SSC 5		1450
46	46SSA 3	138"	770	46SSA 5	230"	1230
	46SSB 3		870	46SSB 5		1370
	46SSC 3		1020	46SSC 5		1640
48	48SSA 3	144"	860	48SSA 5	240"	1380
	48SSB 3		985	48SSB 5		1550
	48SSC 3		1110	48SSC 5		1745
54	54SSA 3	162"	1530	54SSA 5	270"	2690
	54SSB 3		1850	54SSB 5		2950
	54SSC 3		2050	54SSC 5		3270
60	60SSA 3	180"	2040	60SSA 5	300"	3225
	60SSB 3		2285	60SSB 5		3655
	60SSC 3		2580	60SSC 5		4060
66	66SSA 3	198"	2660	66SSA 5	330"	4200
	66SSB 3		2970	66SSB 5		4750
	66SSC 3		3360	66SSC 5		5300
72	72SSA 3	216"	3350	72SSA 5	360"	5300
	72SSB 3		3760	72SSB 5		6000
	72SSC 3		4240	72SSC 5		6660
78	78SSA 3	234"	4180	78SSA 5	390"	6600
	78SSB 3		4700	78SSB 5		7500
	78SSC 3		5300	78SSC 5		8300
84	84SSA 3	252"	5120	84SSA 5	420"	8100
	84SSB 3		5750	84SSB 5		9150
	84SSC 3		6500	84SSC 5		10,200
90	90SSA 3	270"	6180	90SSA 5	450"	9750
	90SSB 3		6900	90SSB 5		11,000
	90SSC 3		7800	90SSC 5		12,300
96	96SSA 3	288"	7350	96SSA 5	480"	11,700
	96SSB 3		8300	96SSB 5		13,200
	96SSC 3		9300	96SSC 5		14,700

Sizes between those shown can also be supplied. Larger sizes on request.

TABLE IV
Dimensions of Circular Stack Stuffers
SSCA 3, SSCB 2, SSCB 3, SSCC 3, SSCD 1, SSCD 3

Stack Diameter	"D"			"L"					
	Model	Length	Wgt. lb.	Model	Length	Wgt. lb.			
24	24SSCD 1	24"	94	24SSCB 2	48"	106	24SSCA 3	72"	113
							24SSCB 3		143
							24SSCC 3		170
							24SSCD 3		184
26	26SSCD 1	26"	131	26SSCB 2	52"	146	26SSCA 3	78"	170
							26SSCB 3		189
							26SSCC 3		227
							26SSCD 3		261
28	28SSCD 1	28"	155	28SSCB 2	56"	175	28SSCA 3	84"	200
							28SSCB 3		230
							28SSCC 3		277
							28SSCD 3		315
30	30SSCD 1	39"	180	30SSCB 2	60"	208	30SSCA 3	90"	233
							30SSCB 3		274
							30SSCC 3		331
							30SSCD 3		371
32	32SSCD 1	32"	207	32SSCB 2	64"	244	32SSCA 3	96"	269
							32SSCB 3		325
							32SSCC 3		392
							32SSCD 3		435
34	34SSCD 1	34"	228	34SSCB 2	68"	275	34SSCA 3	102"	296
							34SSCB 3		363
							34SSCC 3		439
							34SSCD 3		490
36	36SSCD 1	36"	270	36SSCB 2	72"	327	36SSCA 3	108"	351
							36SSCB 3		444
							36SSCC 3		533
							36SSCD 3		581
38	38SSCD 1	38"	307	38SSCB 2	76"	371	38SSCA 3	114"	398
							38SSCB 3		504
							38SSCC 3		604
							38SSCD 3		658
40	40SSCD 1	40"	345	40SSCB 2	80"	418	40SSCA 3	120"	448
							40SSCB 3		567
							40SSCC 3		681
							40SSCD 3		742
42	42SSCD 1	42"	386	42SSCB 2	84"	467	42SSCA 3	128"	501
							42SSCB 3		634
							42SSCC 3		761
							42SSCD 3		830
44	44SSCD 1	44"	430	44SSCB 2	88"	521	44SSCA 3	132"	560
							44SSCB 3		707
							44SSCC 3		850
							44SSCD 3		927
46	46SSCD 1	46"	475	46SSCB 2	92"	576	46SSCA 3	138"	618
							46SSCB 3		781
							46SSCC 3		938
							46SSCD 3		1023
48	48SSCD 1	48"	533	48SSCB 2	96"	633	48SSCA 3	144"	685
							48SSCB 3		857
							48SSCC 3		1040
							48SSCD 3		1132
54	54SSCD 1	54"	1084	54SSCB 2	108"	1222	54SSCA 3	162"	1322
							54SSCB 3		1647
							54SSCC 3		2044
							54SSCD 3		2241
60	60SSCD 1	60"	1356	60SSCB 2	120"	1529	60SSCA 3	180"	1654
							60SSCB 3		2094
							60SSCC 3		2557
							60SSCD 3		2804
66	66SSCD 1	66"	1695	66SSCB 2	132"	1911	66SSCA 3	198"	2068
							66SSCB 3		2618
							66SSCC 3		3196
							66SSCD 3		3505
72	72SSCD 1	72"	1951	72SSCB 2	144"	2276	72SSCA 3	216"	2423
							72SSCB 3		3077
							72SSCC 3		3770
							72SSCD 3		4150
78	78SSCD 1	78"	2314	78SSCB 2	156"	2700	78SSCA 3	234"	2870
							78SSCB 3		3645
							78SSCC 3		4470
							78SSCD 3		4920
84	84SSCD 1	84"	2710	84SSCB 2	168"	3165	84SSCA 3	256"	3370
							84SSCB 3		4280
							84SSCC 3		5240
							84SSCD 3		5770
90	90SSCD 1	90"	3140	90SSCB 2	180"	3665	90SSCA 3	270"	3900
							90SSCB 3		4950
							90SSCC 3		6070
							90SSCD 3		6680
96	96SSCD 1	96"	3610	96SSCB 2	192"	4210	96SSCA 3	288"	4485
							96SSCB 3		5690
							96SSCC 3		6975
							96SSCD 3		7680

Sizes between these shown can also be supplied. Larger sizes on request.

RECTANGULAR STACK-STUFFER

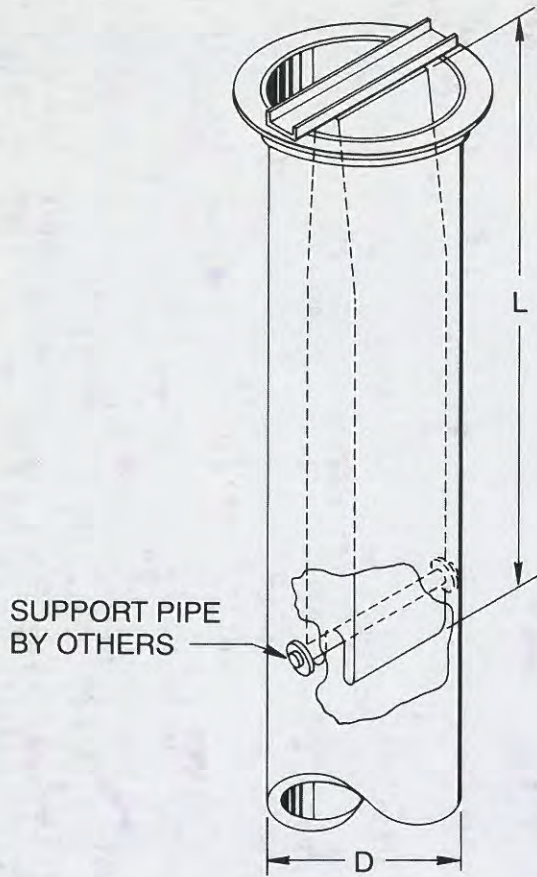


Figure 1

CIRCULAR STACK-STUFFER

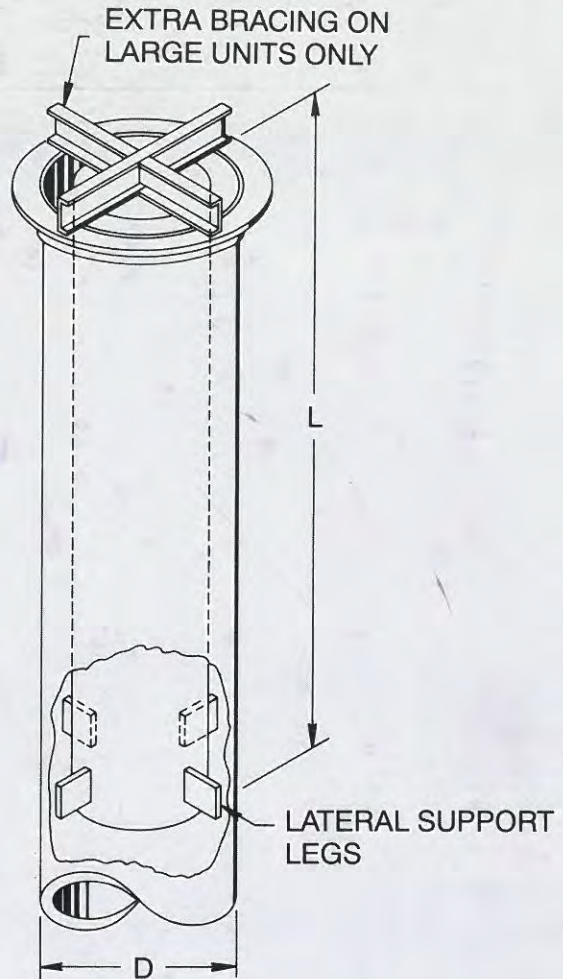


Figure 2

INFORMATION REQUIRED FOR US TO SIZE A STACK-STUFFER FOR YOU

In order to properly size a Stack-Stuffer, we need to know the following:

1. Gas flow, temperature and composition.
2. Allowable pressure drop.
3. Corrosion requirements.
4. Acoustic requirements—i.e. stack height, distance from nearest house, (or your own offices), noise source (if fan, BHP, operating pressure, r.p.m. and number of blades), or your own requirements.
5. Mounting—i.e. in existing stack, or for installation in new stack.
6. Stack dimensions.

SPECIFYING STACK-STUFFERS

1. Acoustical Performance

Acoustical performance should be specified as Net Insertion Loss in db. for each of the eight standard octave bands (see Table I). Some data on required Net Insertion Loss for fans is given in Bulletin B-529. If in doubt, let our engineers help you.

2. Pressure Drop Performance

Maximum allowable pressure drop through the silencer, including entrance and exit losses, at the fan maximum operating flow, temperature and altitude, should be specified. See Table III.

3. Silencer Construction

The construction of the Stack-Stuffer should be compatible with that of the stack, although lighter gage materials can be used because of the highly damped construction of the Stack-Stuffer. Usually the Stack-Stuffer should be $\frac{1}{2}$ the thickness of the stack—i.e. use a 10 gage Stuffer in a $\frac{1}{4}$ " stack. If corrosive gases are involved, it may be necessary to use stainless steel. Galvanizing is usually sufficient protection from wet gases below 250° F.