



INDUSTRIAL
NOISE & AIR POLLUTION SPECIALISTS
EXHAUST COMPONENTS

E N G I N E

S I L E N C E R S &

A C C E S S O R I E S

Telephone 780.435.8616

Fax 780.437.8839

Toll Free 1.866.435.8616

E-mail rick@industrialexhaust.com

www.industrialexhaust.com



CUSTOM DESIGNS & OPTIONS

At Industrial Exhaust Components, we specialize in custom designs and fabrication. We can design a silencer to suite your specific inlet and outlet configurations. Other silencer options include mounting brackets and supports, inspection openings and lifting connections. Alternative construction materials include aluminized steel or stainless steel and special paint. Call for details, or see our custom silencer design form on **page 16** of our catalogue.

WARRANTY

All IEC silencers are warranted against defects in material and workmanship. Our liability is limited to replacement of product or to original price of product. We assume no liability for any costs associated with replacement or use of our product. No other expressed or implied warranties exist.

SATISFACTION

We are continually expanding our product offerings through engineering and design. Our versatility and production capabilities allow us to fabricate quality exhaust systems with quick response time.

INSTALLATION AND MAINTENANCE INSTRUCTIONS

Upon receipt of your silencer, inspect for any shipping damage and verify correct part numbers are received. Keep any protective packaging on the unit until installation.

When ready to install, check silencer tag for flow direction, then place the silencer on a level and adequate mounting surface. Make sure to align the unit with the engine and/or piping connections.

We recommend that you install a suitable expansion joint between the silencer and the engine. This will reduce the possibility of vibration or thermal induced damage.

Prior to startup of the engine, ensure that the unit is firmly mounted and that all hardware such as gaskets, flange bolts, expansion joints and mounting supports are installed and secure. Periodically check all connections and supports to ensure that the unit has not vibrated loose. It is recommended to open the drain plug on standard silencers and the carbon trap plug on spark arrestor models from time to time in order to minimize water and carbon build up.

SILENCER GRADES

Our Silencers are offered in five attenuation ranges for our standard Engine Silencers Series and four attenuation grades for our Spark Arrestor Silencer Series as follows:

- **Industrial Grade – "I" Series & "ISA" Series.**

Designed for use in industrial areas where silencing requirements are minimal.

- **Residential Grade – "R" Series & "RSA" Series.**

For use in residential areas or light industrial areas where noise levels are a concern.

- **Critical Grade – "C" Series & "CSA" Series.**










Recommended for use in areas of heavy residential and school areas where noise is a critical factor.

- **Hospital Grade – "H" Series & "HSA" Series.**

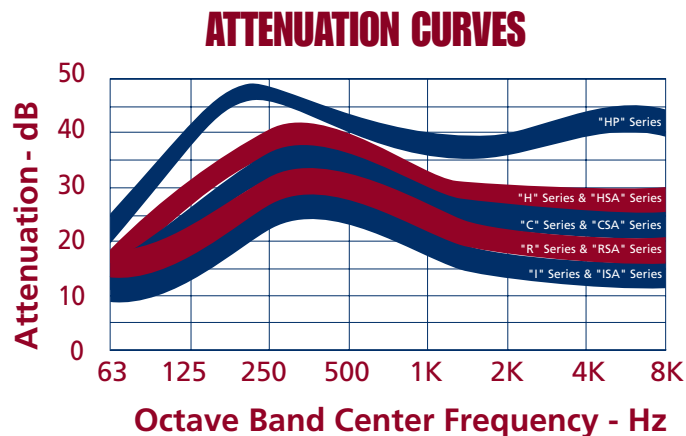
For use in locations where ambient noise levels are very low, such as schools, hotels and hospitals.

- **Hospital Plus Grade – "HP" Series.**

Designed for use in noise sensitive locations where ambient noise levels are extremely low and maximum silencing is required.

Insertion Loss dBA	Standard Silencer Series	Spark Arrestor Series
15-25	"I" 	"ISA" 
25-30	"R" 	"RSA" 
30-35	"C" 	"CSA" 
35-40	"H" 	"HSA" 
35-50	"HP" 	

The following attenuation curve indicates the insertion loss in dBA for each grade of silencer at different frequencies.



Note: The attenuation curves shown in the above chart are estimates only. Results may vary due to performance variables with each application.

STEP 1

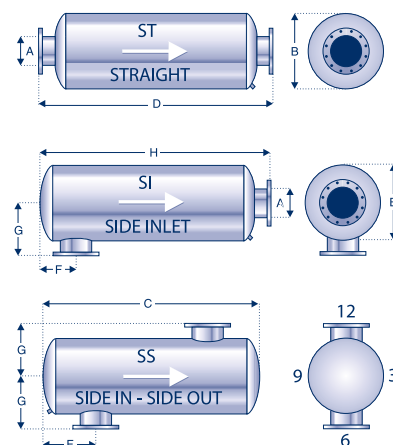
Determine what grade of silencer is required from grade chart on page 4. Then select the silencer style based on inlet and outlet configuration shown below (straight through design, side-in/side-out). Refer to the "Series" pages of the catalogue for model measurements.

STEP 2

Obtain engine information (required).

- Exhaust CFM:
- Exhaust Temp (F):
- Allowable Pressure Drop:
Inches of H2O.

Silencer
Configurations



STEP 3

Determine silencer pipe size and then calculate the gas velocity using **formula #1** below. Once the gas velocity has been calculated, use **formula #2** to calculate the pressure drop through the silencer. If the pressure drop is greater than the allowable pressure drop suggested by the engine manufacturer, choose a larger size and recalculate until you have reached a pressure drop that is within the allowable engine specifications. The maximum velocity should not exceed 12,500 feet per minute.

Flow Area / Size Table #1

Pipe Size Dia.	Area Sq. Ft.
1.5"	.0120
2"	.0220
2.5"	.0340
3"	.0490
3.5"	.0670
4"	.0870
5"	.1360
6"	.1960
8"	.3490
10"	.5500
12"	.7900
14"	1.070
16"	1.400

Pressure Drop Coefficient (C) Table #2

Series Silencer Grade	(ST) Straight Through	(SI & SS) Side Inlet
"I"	4.00	4.40
"R"	4.20	4.60
"C"	4.80	5.30
"H"	5.20	5.70
"HP"	5.50	6.00

Formula #1

$$\text{Gas Velocity} = \frac{\text{actual exhaust CFM}}{\text{flow area (table \#1)}} = V \text{ (fpm)}$$

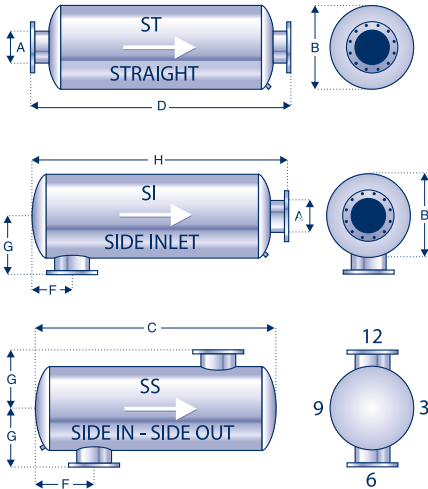
Formula #2

$$\text{Silencer Pressure Drop} = {}^*C \times \left[\frac{V}{4005} \right]^2 \times \frac{530}{T \text{ (f)} + 460}$$

* Use pressure drop coefficient in table #2.

To convert from inches of H2O to inches of Hg., multiply the silencer pressure drop by .07334

STYLE



APPLICATION

The "I" Series Engine Silencer is designed for use in industrial areas where silencing requirements are minimal.



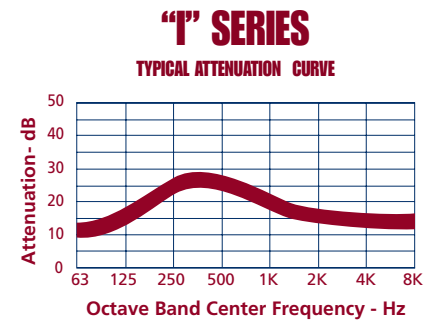
INDUSTRIAL GRADE

DESIGN & CONSTRUCTION

All IEC Silencers are constructed from heavy gauge sheet steel with all welded construction. The heavy gauge steel ensures longer silencer life and better resistance to damage. The internal components of our silencers are engineered to minimize resonance and vibration induced fatigue. The inlet and outlet on silencers up to 3.5" are schedule 40 NPT. Silencers 4" and larger are manufactured with 1/2" thick plate material drilled to 150lb. ANSI specifications. Drain plugs are standard on all models 4" and above.

PERFORMANCE

The "I" Series is an Industrial Grade Silencer with insertion loss of approximately **20 – 25 dBA**. The chart below shows typical attenuation over the Octave Band Frequency.



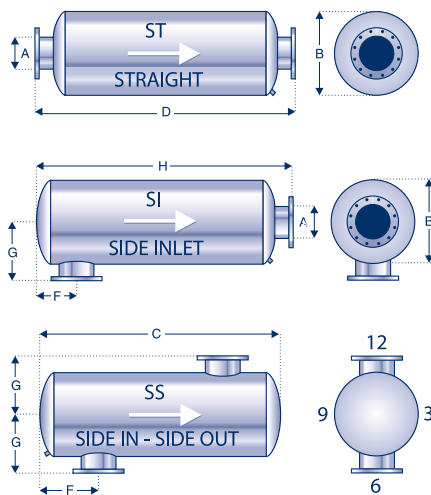
DIMENSIONS

"I" Series

Model	Inlet						Outlet		G	H	Wt.
	A	B	C	D	F(min)	F(max)	F(min)	F(max)			
I - 1.5	1.5	9	14	20	3.5	5.5	3.5	3.5	7.5	17	24
I - 2	2	9	14	20	4	5	4	4	7.5	17	26
I - 2.5	2.5	10	18	24	4.5	7.5	4.5	4.5	8	21	35
I - 3	3	12	20	26	5	8.5	5	5	9	23	43
I - 3.5	3.5	14	24	30	5.5	11	5.5	5.5	10	27	56
I - 4	4	14	26	34	6	12	6	6	11	30	75
I - 5	5	16	33	41	7	16.5	7	7	12	37	96
I - 6	6	18	39	47	7.5	19.5	7.5	8.5	13	43	125
I - 8	8	22	50	58	9.5	26	9.5	11.5	15	54	263
I - 10	10	26	52	60	11.5	25.5	11.5	11.5	17	56	352
I - 12	12	30	62	70	13	31	13	13.5	19	66	584
I - 14	14	36	70	80	15.5	35	15.5	16.5	23	75	763

Dimensions are in inches, weight in pounds. Dimensions and weight may vary in production models. Drawings are available upon request.

STYLE



APPLICATION

The "R" Series Engine Silencer is designed for use in residential or light industrial areas where noise levels are a concern.



DESIGN & CONSTRUCTION

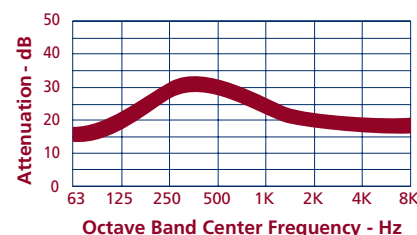
All IEC Silencers are constructed from heavy gauge sheet steel with all welded construction. The heavy gauge steel ensures longer silencer life and better resistance to damage. The internal components of our silencers are engineered to minimize resonance and vibration induced fatigue. The inlet and outlet on silencers up to 3.5" are schedule 40 NPT. Silencers 4" and larger are manufactured with 1/2" thick plate material drilled to 150lb. ANSI specifications. Drain plugs are standard on all models 4" and above.

PERFORMANCE

The "R" Series is a Residential Grade Silencer with insertion loss of approximately **25 – 30 dBA**. The chart to the right shows typical attenuation over the Octave Band Frequency.

"R" SERIES

TYPICAL ATTENUATION CURVE



DIMENSIONS

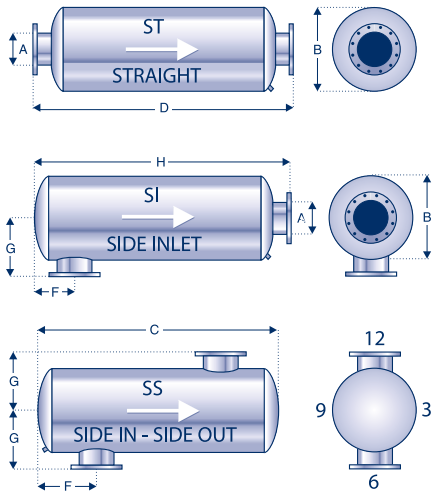
"R" Series

Model	Inlet						Outlet		G	H	Wt.
	A	B	C	D	F(min)	F(max)	F(min)	F(max)			
R - 1.5	1.5	9	24	30	4	12	4	5.5	7.5	27	33
R - 2	2	9	24	30	4.5	12	4.5	5	7.5	27	35
R - 2.5	2.5	10	28	34	5	14	5	6	8	31	46
R - 3	3	12	32	38	5.5	16.5	5.5	7.5	9	35	60
R - 3.5	3.5	14	36	42	6	19	6	8.5	10	39	76
R - 4	4	14	40	48	6	21.5	6	10	11	44	99
R - 5	5	16	47	55	7	25.5	7	12	12	51	125
R - 6	6	18	55	63	8	30.5	8	14	13	59	162
R - 8	8	22	68	76	9.5	35	9.5	16.5	15	72	342
R - 10	10	26	83	91	11.5	46	11.5	21.5	17	87	520
R - 12	12	30	94	102	13	52.5	13	24.5	19	98	826
R - 14	14	36	99	109	15.5	54.5	15.5	26	23	104	1029

Dimensions are in inches, weight in pounds. Dimensions and weight may vary in production models. Drawings are available upon request.



STYLE



APPLICATION

The "C" Series Engine Silencer is recommended for use in heavy residential and school areas where noise is a critical factor.



DESIGN & CONSTRUCTION

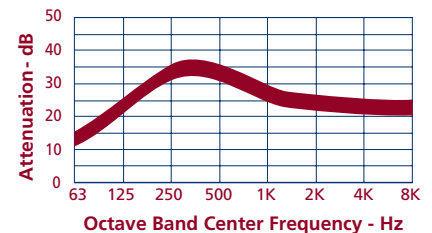
All IEC Silencers are constructed from heavy gauge sheet steel with all welded construction. The heavy gauge steel ensures longer silencer life and better resistance to damage. The internal components of our silencers are engineered to minimize resonance and vibration induced fatigue. The inlet and outlet on silencers up to 3.5" are schedule 40 NPT. Silencers 4" and larger are manufactured with 1/2" thick plate material drilled to 150lb. ANSI specifications. Drain plugs are standard on all models 4" and above.

PERFORMANCE

The "C" Series is a Critical Grade Silencer with insertion loss of approximately **30 – 35 dBA**. The chart below shows typical attenuation over the Octave Band Frequency.

"C" SERIES

TYPICAL ATTENUATION CURVE



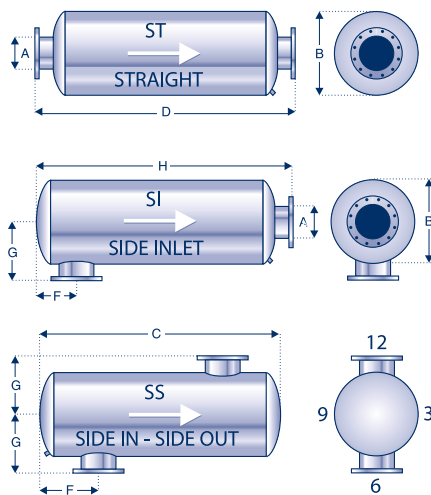
DIMENSIONS

"C" Series

Model	Inlet						Outlet				Wt.
	A	B	C	D	F(min)	F(max)	F(min)	F(max)	G	H	
C - 1.5	1.5	9	24	30	4	12	4	5.5	7.5	27	33
C - 2	2	10	30	36	4.5	16	4.5	7	8	33	44
C - 2.5	2.5	12	34	40	5.5	18	5.5	8.5	9	37	60
C - 3	3	14	40	46	5.5	22	5.5	10	10	43	78
C - 3.5	3.5	16	44	50	6.5	24	6.5	11.5	11	47	99
C - 4	4	16	46	54	6.5	25.5	6.5	12	12	50	120
C - 5	5	18	56	64	7	31.5	7	15	13	60	155
C - 6	6	22	64	72	8.5	36	8.5	17.5	15	68	309
C - 8	8	26	77	85	10	43.5	10	21	17	81	429
C - 10	10	30	95	103	12	54	12	25.5	19	99	686
C - 12	12	36	110	118	15	62.5	15	30.5	22	114	1078

Dimensions are in inches, weight in pounds. Dimensions and weight may vary in production models. Drawings are available upon request.

STYLE



APPLICATION

The "H" Series Engine Silencer is designed for use in locations where ambient noise levels are very low, such as schools, hotels and hospitals.



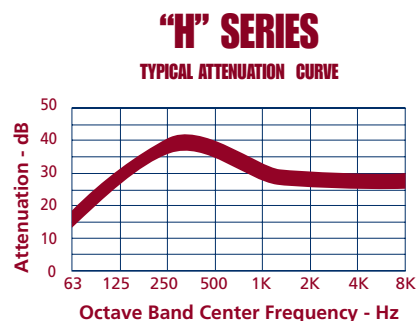
HOSPITAL GRADE

DESIGN & CONSTRUCTION

All IEC Silencers are constructed from heavy gauge sheet steel with all welded construction. The heavy gauge steel ensures longer silencer life and better resistance to damage. The internal components of our silencers are engineered to minimize resonance and vibration induced fatigue. The inlet and outlet on silencers up to 3.5" are schedule 40 NPT. Silencers 4" and larger are manufactured with 1/2" thick plate material drilled to 150lb. ANSI specifications. Drain plugs are standard on all models 4" and above.

PERFORMANCE

The "H" Series is a Hospital Grade Silencer with insertion loss of approximately 35 – 40 dBA. The chart below shows typical attenuation over the Octave Band Frequency.



DIMENSIONS

"H" Series

Model	A	B	C	D	F	G	H	Wt.
H - 1.5	1.5	9	30	36	3.5	7.5	33	54
H - 2	2	10	34	40	4.5	8	37	67
H - 2.5	2.5	12	40	46	5.5	9	43	92
H - 3	3	14	44	50	6	10	47	117
H - 3.5	3.5	16	48	54	7	11	51	144
H - 4	4	18	56	64	7	13	60	197
H - 5	5	22	64	72	9	15	68	330
H - 6	6	26	77	85	11	17	81	457
H - 8	8	30	95	103	12	19	99	706
H - 10	10	36	110	118	14	22	114	1025
H - 12	12	36	124	132	14	22	128	1362

Dimensions are in inches, weight in pounds. Dimensions and weight may vary in production models.

Drawings are available upon request.

STYLE



APPLICATION

The "Rectangular Series" Engine Silencer is designed for use in situations where space is a concern. Common applications include engines with enclosures in the Oil and Gas Industry.



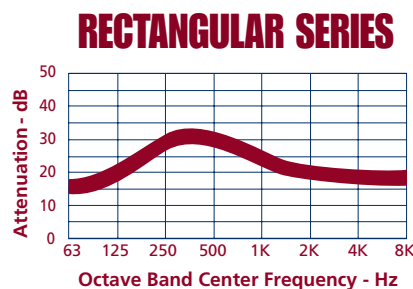
**RECTANGULAR
RESIDENTIAL GRADE**

DESIGN & CONSTRUCTION

Our Rectangular Silencers are a multi-chambered design, in which exhaust gases flow through an arrangement of inlet pipe chambers and outlet pipe. The Rectangular Silencer has compact dimensions for easy mounting. Its' heavy gauge all welded construction can resist temperatures up to 1200 deg F. The Silencer also features re-enforced inlet and outlet pipes to reduce joint stress. The 90-degree angle from inlet to outlet minimizes high frequency and backpressure while maintaining acoustical performance.

PERFORMANCE

The "Rectangular Series" is a Residential Grade Silencer with insertion loss of approximately **25 – 30 dBA**. The chart below shows typical attenuation over the Octave Band Frequency.



DIMENSIONS

Rectangular Series

Part #	Inlet	Outlet	Length	Width	Height	Pipe Length	
						Inlet	Outlet
6R	6"	6"	34"	28"	8"	6"	6"
8R	8"	8"	48"	36"	12"	9"	9"
10R	10"	10"	48"	36"	12"	10"	10"

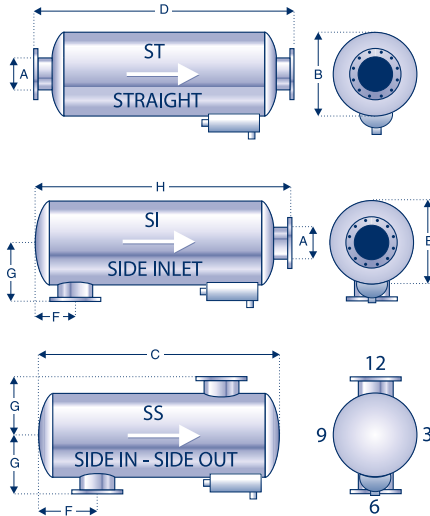
Weight: **6R** = 135 lbs., **8R** = 185 lbs., **10R** = 195 lbs.

Dimensions are in inches, weight in pounds. Dimensions and weight may vary in production models.

Drawings are available upon request.

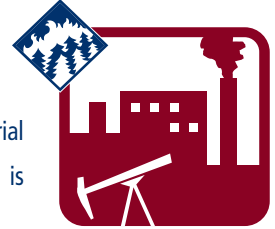


STYLE



APPLICATION

The "ISA" Series Spark Arrestor Silencer is designed for use in industrial areas where silencing requirements are minimal and spark arresting is required.



**INDUSTRIAL GRADE
SPARK ARRESTOR**

DESIGN & CONSTRUCTION

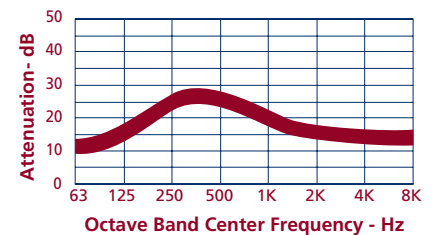
All IEC Spark Arrestor Silencers are constructed from heavy gauge sheet steel with all welded construction. The heavy gauge steel ensures longer silencer life and better resistance to damage. The internal components of our silencers are engineered to minimize resonance and vibration induced fatigue. The inlet and outlet on silencers up to 3.5" are schedule 40 NPT. Silencers 4" and larger are manufactured with 1/2" thick plate material drilled to 150lb. ANSI specifications. Drain plugs are standard on all models.

PERFORMANCE

The "ISA" Series is an Industrial Grade Spark Arrestor Silencer with insertion loss of approximately **15 – 25 dBA**. The chart below shows typical attenuation over the Octave Band Frequency.

"ISA" SERIES

TYPICAL ATTENUATION CURVE



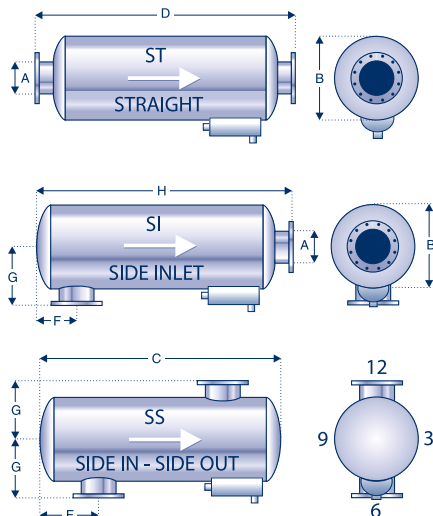
DIMENSIONS

"ISA" Series

Model	A	B	C	D	F	G	H	Wt.
ISA - 1.5	1.5	9	14	20	3.5	7.5	17	29
ISA - 2	2	9	14	20	3.5	7.5	17	30
ISA - 2.5	2.5	10	18	24	4.5	8	21	38
ISA - 3	3	12	20	26	5.5	9	23	47
ISA - 3.5	3.5	14	24	30	6	10	27	60
ISA - 4	4	14	26	34	6	11	30	82
ISA - 5	5	16	33	41	7	12	37	104
ISA - 6	6	18	39	47	7	13	43	130
ISA - 8	8	22	50	58	9	15	54	268
ISA - 10	10	26	52	60	11	17	56	355
ISA - 12	12	30	62	70	12	19	66	581
ISA - 14	14	36	70	80	16	23	75	774

Dimensions are in inches, weight in pounds. Dimensions and weight may vary in production models. Drawings are available upon request.

STYLE



APPLICATION

The "RSA" Series Spark Arrestor Silencer is designed for use in residential or light industrial areas where noise levels are a concern and spark arresting is required.



SPARK ARRESTOR

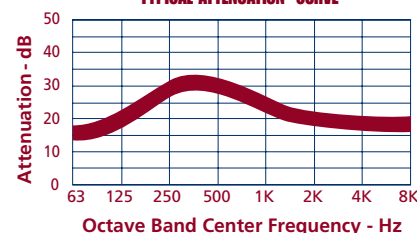
DESIGN & CONSTRUCTION

All IEC Spark Arrestor Silencers are constructed from heavy gauge sheet steel with all welded construction. The heavy gauge steel ensures longer silencer life and better resistance to damage. The internal components of our silencers are engineered to minimize resonance and vibration induced fatigue. The inlet and outlet on silencers up to 3.5" are schedule 40 NPT. Silencers 4" and larger are manufactured with 1/2" thick plate material drilled to 150lb. ANSI specifications. Drain plugs are standard on all models.

PERFORMANCE

The "RSA" Series is a Residential Grade Spark Arrestor Silencer with insertion loss of approximately **25 – 30 dBA**. The chart below shows typical attenuation over the Octave Band Frequency.

"RSA" SERIES
TYPICAL ATTENUATION CURVE



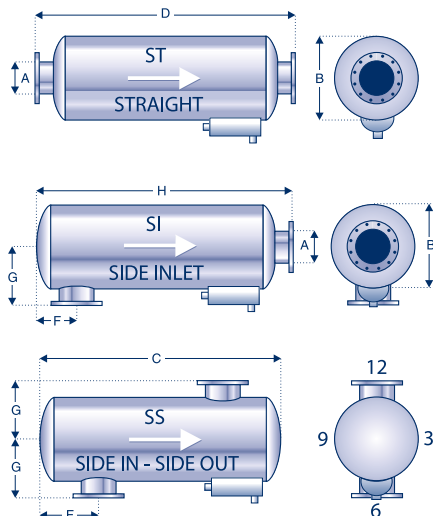
DIMENSIONS

"RSA" Series

Model	A	B	C	D	F	G	H	Wt.
RSA - 1.5	1.5	9	24	30	3	7.5	27	36
RSA - 2	2	9	24	30	3.5	7.5	27	38
RSA - 2.5	2.5	10	28	34	4.5	7.5	31	48
RSA - 3	3	12	32	38	5.5	9	35	61
RSA - 3.5	3.5	14	36	42	6	10	39	76
RSA - 4	4	14	40	48	6	11	44	103
RSA - 5	5	16	47	55	7	12	51	129
RSA - 6	6	18	55	63	7	13	59	167
RSA - 8	8	22	68	76	9	15	72	345
RSA - 10	10	26	83	91	11	17	87	525
RSA - 12	12	30	94	102	12	19	98	829
RSA - 14	14	36	99	109	16	23	104	1033

Dimensions are in inches, weight in pounds. Dimensions and weight may vary in production models. Drawings are available upon request.

STYLE



APPLICATION

The "HSA" Series Spark Arrestor Silencer is designed for use in locations where ambient noise levels are very low, such as schools, hotels and hospitals and where spark arresting is required.



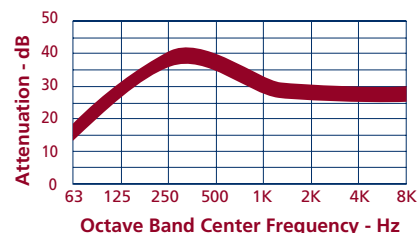
DESIGN & CONSTRUCTION

All IEC Spark Arrestor Silencers are constructed from heavy gauge sheet steel with all welded construction. The heavy gauge steel ensures longer silencer life and better resistance to damage. The internal components of our silencers are engineered to minimize resonance and vibration induced fatigue. The inlet and outlet on silencers up to 3.5" are schedule 40 NPT. Silencers 4" and larger are manufactured with 1/2" thick plate material drilled to 150lb. ANSI specifications. Drain plugs are standard on all models.

PERFORMANCE

The "HSA" Series is a Hospital Grade Spark Arrestor Silencer with insertion loss of approximately **35 – 40 dBA**. The chart below shows typical attenuation over the Octave Band Frequency.

"HSA" SERIES
TYPICAL ATTENUATION CURVE



DIMENSIONS

"HSA" Series

Model	A	B	C	D	F	G	H	Wt.
HSA - 1.5	1.5	9	30	36	3.5	7.5	33	55
HSA - 2	2	10	34	40	4.5	8	37	68
HSA - 2.5	2.5	12	40	46	5.5	9	43	94
HSA - 3	3	14	44	50	6	10	47	119
HSA - 3.5	3.5	16	48	54	7	11	51	147
HSA - 4	4	18	56	64	7	13	60	201
HSA - 5	5	22	64	72	9	15	68	337
HSA - 6	6	26	77	85	11	17	81	466
HSA - 8	8	30	95	103	12	19	99	720
HSA - 10	10	36	110	118	14	22	114	1045
HSA - 12	12	36	128	136	14	22	128	1389

Dimensions are in inches, weight in pounds. Dimensions and weight may vary in production models.

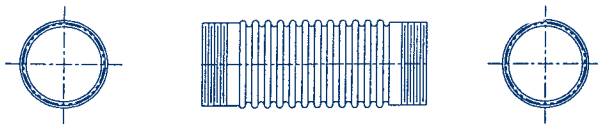
Drawings are available upon request.



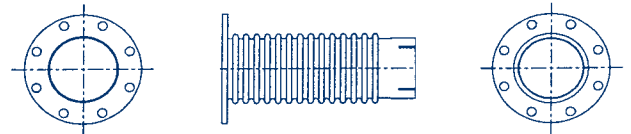
IEC has created a system of stock Expansion Joints for your quick turn/emergency requirements. Stock Expansion Joints range from 1" to 20" in diameter. Using our large stock of product, we can quickly assemble and ship

a variety of Expansion Joints to meet your specifications. Please call for more technical data and sizes.

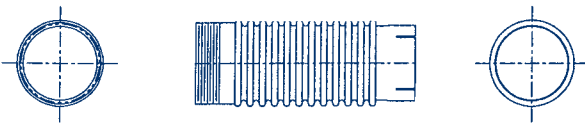
Male NPT/Male NPT



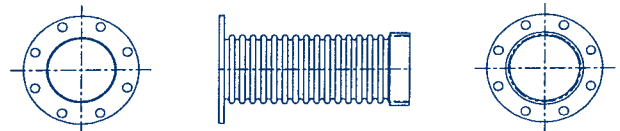
Flange/Slotted Cuff



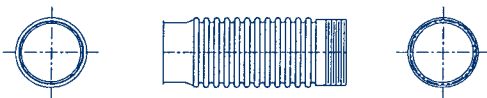
Male NPT/Slotted Cuff



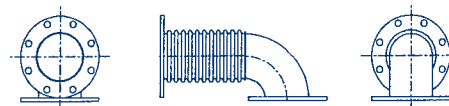
Flange/Female NPT



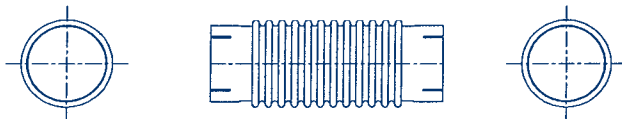
20' Lip Flange/Male NPT



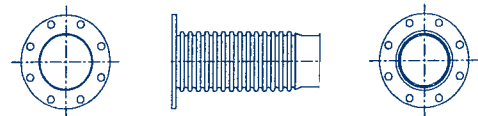
Flange/Flanged 90° Elbow



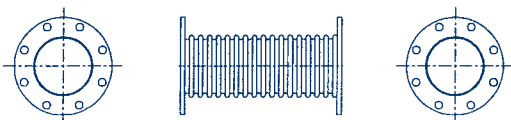
Slotted Cuff/Slotted Cuff



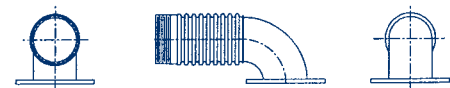
Flange/20° Lip Flange



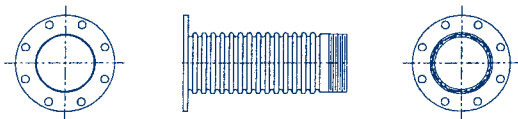
Flange/Flange



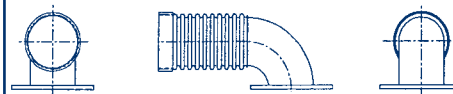
Male NPT/Flanged 90° Elbow



Flange/Male NPT

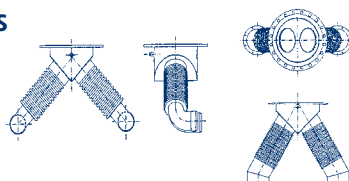


Female NPT/Flanged 90° Elbow



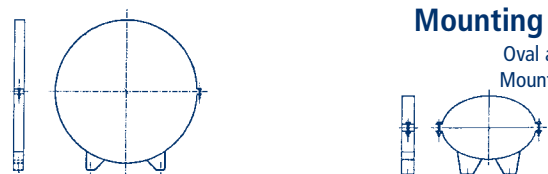
Wye Connections

Available for various applications



Mounting Bands

Oval and Round Mounting Bands

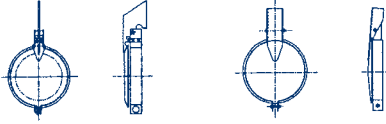




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90° Short Radius Tube Elbow



90° Short Radius Elbow with Flange One End

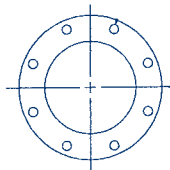


90° Short Radius Tube Elbow with Flange Both Ends



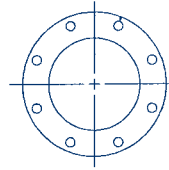
Flanges—Model PFL

Pipe Plate Flange



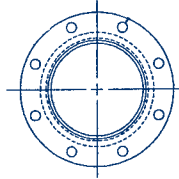
Flanges—Model TFL

Tube Plate Flange



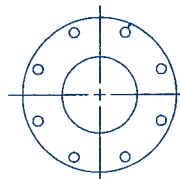
Flanges—Model FLT

Threaded Plate Flange



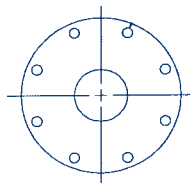
Flanges—Model REFL

Reducing Plate Flange

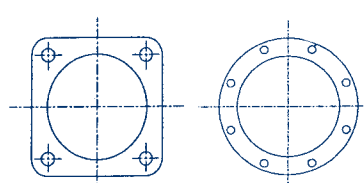


Flanges—Model DREFL

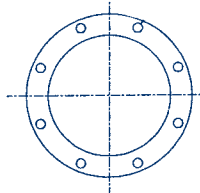
Double Reducing Plain Flange



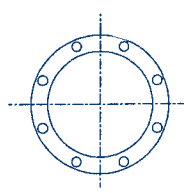
Special Flanges Caterpillar



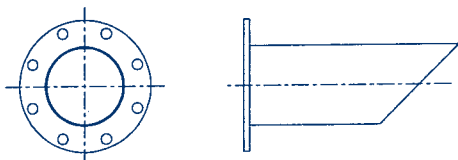
Special Flanges Detroit Diesel



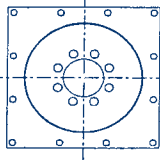
Special Flanges Cummins/Onan



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