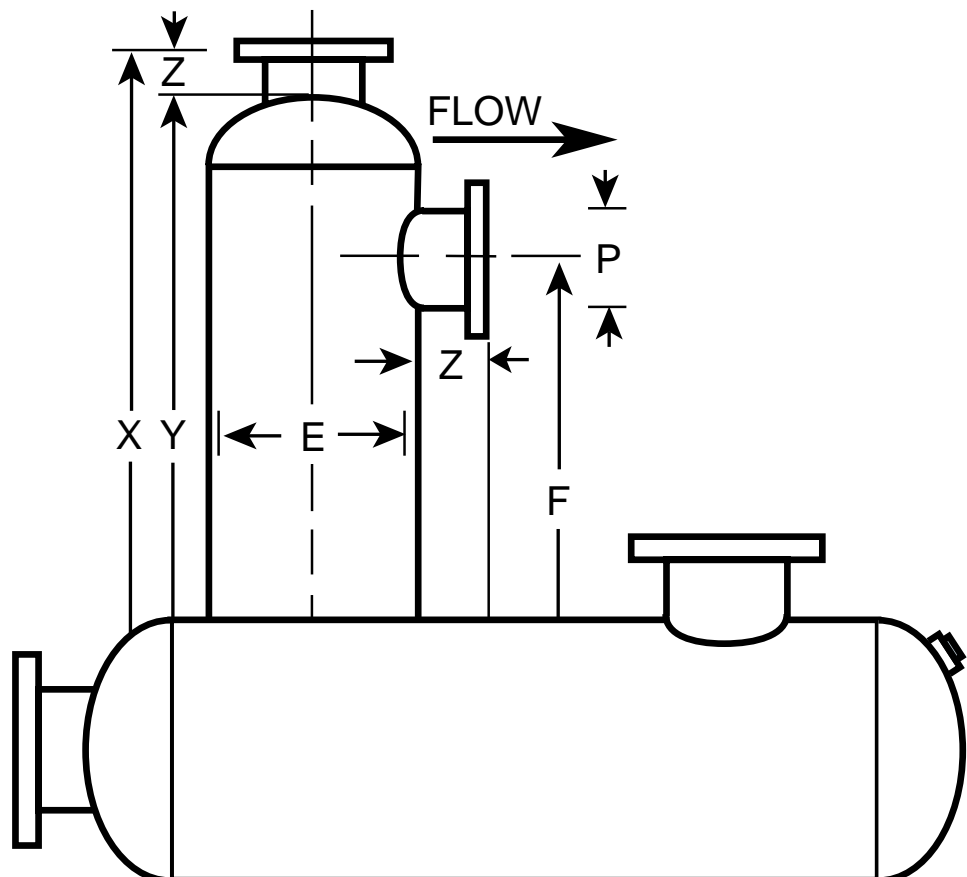


ENGINE SILENCERS



INFORMATION ON ENGINE SILENCERS

All internal combustion engines produce noise, some more or less than the others. The intensity and magnitude of the noise will vary greatly depending upon engine type i.e. naturally aspirated or turbocharged, horse power developed, means of scavenging, type of fuel used, number of cycles whether 2 cycle or 4 cycle engine etc.

Among the pre-dominant sources that makes up the engine noise are the engine intake and exhaust.

For the purpose of noise control on engines, it is common practise to use silencers at intake and exhaust for treating the airborne noise. We have detailed various models of silencers in this catalogue that will cover most silencing requirements.

In cases where standard construction silencers do not meet the particular application, the special silencers can be designed to suit specific requirements.

In silencing internal combustion engines, the most widely used silencers are the reactive type, or chamber construction silencers. This type is largely dependent on area change to reflect sound energy back to the source and utilizes the attenuation properties of expansion chambers and perforated tubes.

The GE SERIES MULTI CHAMBER silencers covered herein are suitable for almost all the type of engines and operating conditions and provides maximum noise attenuation within the specified pressure drop limitations. Most of the naturally aspirated and turbocharged engines are best silenced with these silencers.

The GER SERIES STRAIGHT THRU CHAMBER RESONATOR type silencers are also described herein which are most suitable for very low exhaust system backpressure requirements. Many two cycle turbocharged and some naturally aspirated engines which requires very low back pressure for maximum engine performance will need this type of silencers. These are straight thru reactive type silencers in which exhaust gas flows through a ported tube and resonator which provides adequate silencing without imposing much restriction on the gas flow.

While the standard construction silencers are shown here, we specialize in custom designs for meeting specific requirements. Various nozzle orientations, dual inlets/outlets, different material requirements and special

silencers with insulated shell with high heat absorptive packing are available to reduce radiated noise and also serves the purpose of heat blanket.

The silencers described here will cover most applications such as diesel generator sets, stationary natural gas and diesel engines, engine driven packages, stationary industrial engines etc.

SELECTION OF SILENCER TYPE AND SIZE

The proper selection and sizing of the silencer is of utmost importance to ensure that pressure drop, acoustical performance and other specific design criteria are met.

The selection of the correct type of engine intake and exhaust silencer is determined by the type of engine, the end use of the engine and the degree of silencing required. Also, the silencer size selected must accommodate the specified volume of exhaust gas flow keeping the back pressure within the limits specified by the engine manufacturer.

Generally, engine silencers are broadly classified into following categories depending on the end use.

Commercial Grade – GE1 Series
Industrial Grade – GE2 Series
Semi Residential Grade – GE3 Series
Residential Grade – GE4 Series
Critical Grade – GE5 Series
Super Critical or Hospital Grade – GE6 Series

The attenuation curves shown for each model indicates the insertion loss in dB at different frequencies. These curves represents the expected dynamic insertion loss at each frequency using the respective silencer. The resultant silenced noise levels may vary to some extent as many factors influence the silenced noise which includes the engine size, type, speed, unsilenced noise levels and frequency distribution. These curves represents the insertion loss for airborne noise only and has no bearing on structure borne mechanical noise or pipe radiated noise. Therefore these curves can be used as a guide line only for evaluating the total system performance.

For sizing the silencer, the important factor to be considered is the volume of exhaust flow. The open flow area within the silencer must be large enough to accommodate the exhaust flow without exceeding the engine manufacturer's allowable backpressure. If the silencer is much too large, then the exhaust noise simply passes through using only the initial large expansion for attenuation. On the other hand, insufficient size of silencer may cause loss of power and possible damage to the engine.

The correct silencer size can be determined using following formula:

Data Required

- Engine exhaust flow (CFM)
- Exhaust temperature (°F)
- Maximum allowable backpressure (inches of water)

$$V = 4005 \sqrt{C \left(\frac{530}{T+460} \right) \Delta P}$$

V = Gas velocity in FPM

ΔP = Backpressure, inches of water

C = Silencer pressure drop co-efficient (Table 1)

T = Exhaust gas temperature, °F

Note: Do not exceed 13000 FPM velocity for sizing the silencer irrespective of the allowable backpressure.

After calculating the velocity, decide flow area required as follows:

$$\text{Flow area required (FT}^2\text{)} = \frac{\text{Exhaust CFM}}{V}$$

Table 1. Pressure Drop Coefficients (c)

MODEL	C	MODEL	C	MODEL	C
GE1	4.2	GE4	4.2	GER11	0.15
GE2	4.2	GE5	4.2	GER16	0.20
GE3	4.2	GE6	5.3	GER19	0.25

After choosing the silencer size (Table 2) which has flow area equal to or greater than that calculated, the actual backpressure can be calculated as follows:

$$\Delta P = C \left(\frac{V_{\text{actual}}}{4005} \right)^2 \left(\frac{530}{T+460} \right)$$

$$V_{\text{actual}} = \frac{\text{Exhaust CFM}}{\text{Silencer Flow Area}}$$

Table 2. Flow Area/Size

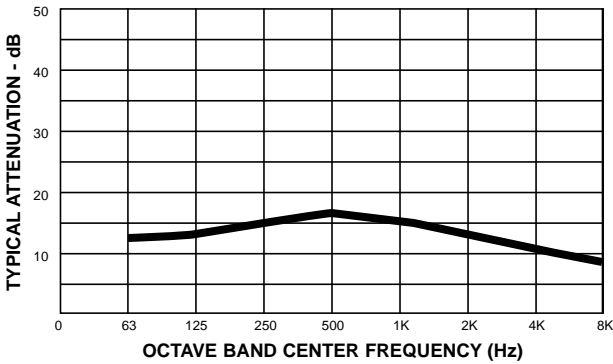
SILENCER SIZE	AREA SQ. FT.	SILENCER SIZE	AREA SQ. FT.
1	0.0055	8	0.349
1 1/2	0.012	10	0.55
2	0.022	12	0.79
2 1/2	0.034	14	1.07
3	0.049	16	1.4
3 1/2	0.067	18	1.8
4	0.087	20	2.2
5	0.136	22	2.6
6	0.196	24	3.1

CONTACT OUR ENGINEERS FOR ASSISTANCE IN YOUR ENGINE SILENCER SELECTION AND SIZING PROBLEMS.

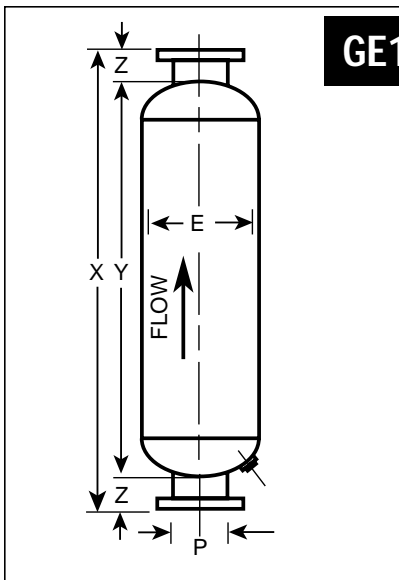
SPECIFICATIONS

GE 1 SERIES CHAMBER CONSTRUCTION COMMERCIAL GRADE SILENCERS

TYPICAL ATTENUATION CURVE

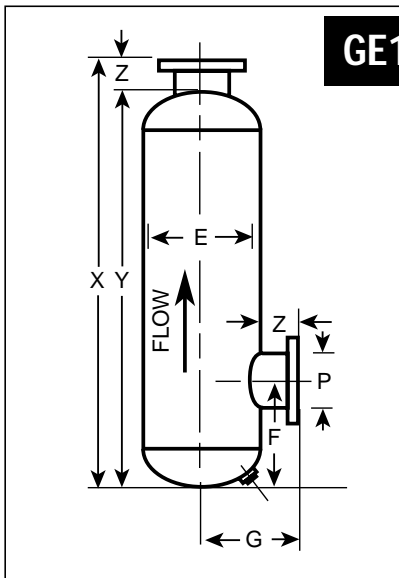


GE 1 Series chamber construction commercial grade silencers are recommended for use in industrial areas where silencing requirements are minimum and where there is no specific noise limitation. The design consists of a multi-chamber, multi-tube arrangement to effectively reduce pulsations, and can be installed in horizontal or vertical position. The standard construction is sturdy, heavy duty, all welded carbon steel sheet and plates. The units 6" and above are provided with flanged connections drilled to 125 lbs. ANSI specifications. The external surfaces are painted with high heat black paint to ensure a longer service life. Custom designs available to suit specific nozzle orientations. The optional features include dual inlets or outlets, inspection openings, mounting brackets, support gussets, lifting lugs, special material of construction such as aluminized steel or stainless steel and special paint.



GE1

MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GE1 - 1	1	4 1/2	21	17	2	10
GE1 - 1 1/2	1 1/2	6 1/2	24	20	2	15
GE1 - 2	2	6 1/2	25	19	3	20
GE1 - 2 1/2	2 1/2	8	32	26	3	25
GE1 - 3	3	8	34	28	3	30
GE1 - 3 1/2	3 1/2	10	36	30	3	40
GE1 - 4	4	10	38	32	3	45
GE1 - 5	5	12	42	36	3	55
GE1 - 6	6	14	44	38	3	70
GE1 - 8	8	18	57	49	4	145
GE1 - 10	10	22	58	50	4	195
GE1 - 12	12	22	75	67	4	250
GE1 - 14	14	30	76	68	4	650
GE1 - 16	16	36	100	92	4	825
GE1 - 18	18	42	102	94	4	1050
GE1 - 20	20	48	103	93	5	1275
GE1 - 22	22	48	115	105	5	1500
GE1 - 24	24	54	126	116	5	1800



GE1S

MODEL	PIPE SIZE P	E	X	Y	Z	G	F		WT.
							MIN.	MAX.	
GE1S - 1	1	4 1/2	19	17	2	SIDE CONNECTION AVAILABLE ON REQUEST FOR SIZES UP TO 2".			10
GE1S - 1 1/2	1 1/2	6 1/2	22	20	2				15
GE1S - 2	2	6 1/2	22	19	3				20
GE1S - 2 1/2	2 1/2	8	29	26	3	7	6	9	25
GE1S - 3	3	8	31	28	3	7	6	11	30
GE1S - 3 1/2	3 1/2	10	33	30	3	8	7	14	40
GE1S - 4	4	10	35	32	3	8	7	16	45
GE1S - 5	5	12	39	36	3	9	8	20	55
GE1S - 6	6	14	41	38	3	10	9	21	70
GE1S - 8	8	18	53	49	4	13	10	23	145
GE1S - 10	10	22	54	50	4	15	13	24	195
GE1S - 12	12	22	71	67	4	15	14	33	250
GE1S - 14	14	30	72	68	4	19	15	34	650
GE1S - 16	16	36	96	92	4	22	17	42	825
GE1S - 18	18	42	98	94	4	25	19	44	1050
GE1S - 20	20	48	98	93	5	29	22	44	1275
GE1S - 22	22	48	110	105	5	29	23	52	1500
GE1S - 24	24	54	121	116	5	32	26	58	1800

Std. fittings

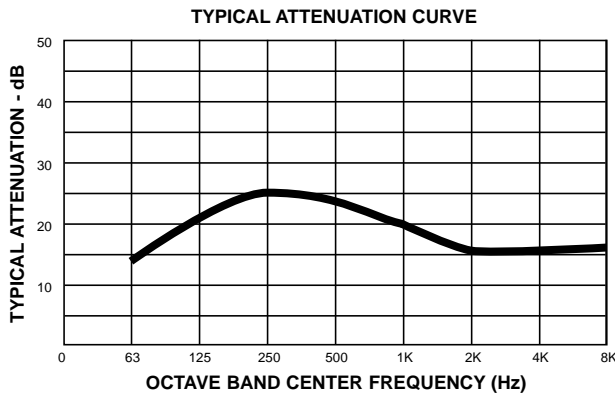
- up to 3 1/2" size - Male thread nipples
- 4" & 5" sizes - optional - male thread nipples or flanges
- 6" & above - 125 lbs. ANSI flange drilling

- Dimensions and weights are approximate and may change slightly with production models.
- Dimension in inches.
- Weight in lbs.

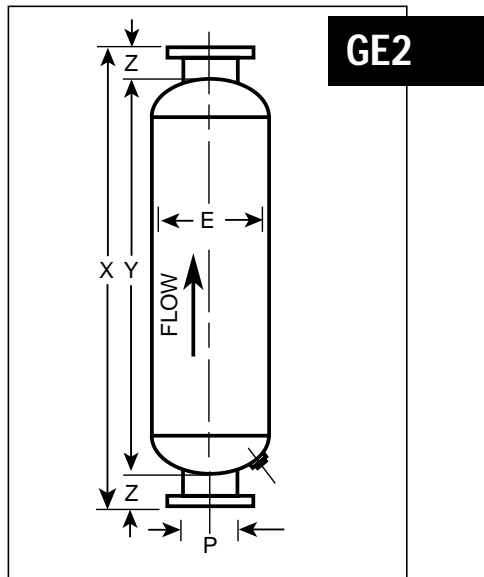
We specialize in custom designs and also provide various nozzle orientations to suit your specific requirements.

SPECIFICATIONS

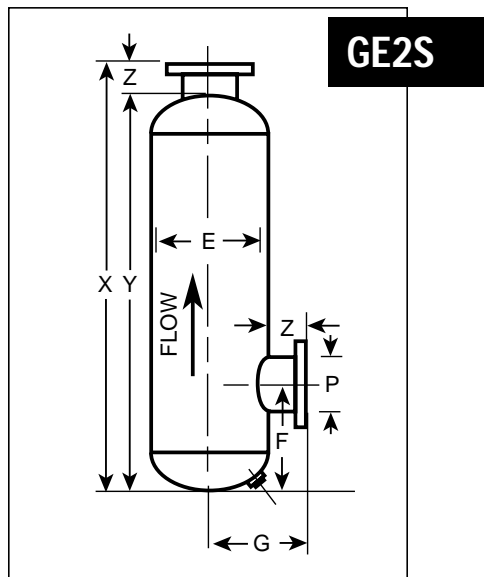
GE 2 SERIES CHAMBER CONSTRUCTION INDUSTRIAL GRADE SILENCERS



GE 2 Series chamber construction industrial grade silencers are recommended for use in industrial areas where silencing requirements are minimum and where the noise criteria are not stringent. The design consists of a multi-chamber, multi-tube arrangement to effectively reduce pulsations, and can be installed in horizontal or vertical position. The standard construction is sturdy, heavy duty, all welded carbon steel sheet and plates. The units 6" and above are provided with flanged connections drilled to 125 lbs. ANSI specifications. The external surfaces are painted with high heat black paint to ensure a longer service life. Custom designs available to suit specific nozzle orientations. The optional features include dual inlets or outlets, inspection openings, mounting brackets, support gussets, lifting lugs, special material of construction such as aluminized steel or stainless steel and special paint.



MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GE2 - 1	1	4 1/2	21	17	2	10
GE2 - 1 1/2	1 1/2	6 1/2	25	21	2	15
GE2 - 2	2	6 1/2	27	21	3	20
GE2 - 2 1/2	2 1/2	8	33	27	3	25
GE2 - 3	3	10	34	28	3	35
GE2 - 3 1/2	3 1/2	10	38	32	3	40
GE2 - 4	4	12	42	36	3	50
GE2 - 5	5	14	51	45	3	75
GE2 - 6	6	14	65	59	3	100
GE2 - 8	8	18	65	57	4	190
GE2 - 10	10	22	75	67	4	250
GE2 - 12	12	26	87	79	4	350
GE2 - 14	14	30	89	81	4	700
GE2 - 16	16	36	115	107	4	900
GE2 - 18	18	42	116	108	4	1400
GE2 - 20	20	48	115	105	5	1500
GE2 - 22	22	48	130	120	5	1600
GE2 - 24	24	54	140	130	5	2000



MODEL	PIPE SIZE P	E	X	Y	Z	G	F		WT.
							MIN.	MAX.	
GE2S - 1	1	4 1/2	19	17	2	SIDE CONNECTION AVAILABLE ON REQUEST FOR SIZES UP TO 2".			10
GE2S - 1 1/2	1 1/2	6 1/2	23	21	2				15
GE2S - 2	2	6 1/2	24	21	3				20
GE2S - 2 1/2	2 1/2	8	30	27	3	7	6	9	25
GE2S - 3	3	10	31	28	3	8	7	14	35
GE2S - 3 1/2	3 1/2	10	35	32	3	8	7	16	40
GE2S - 4	4	12	39	36	3	9	8	20	50
GE2S - 5	5	14	48	45	3	10	9	21	75
GE2S - 6	6	14	62	59	3	10	10	30	100
GE2S - 8	8	18	61	57	4	13	10	30	190
GE2S - 10	10	22	71	67	4	15	13	35	250
GE2S - 12	12	26	83	79	4	17	14	40	350
GE2S - 14	14	30	85	81	4	19	15	41	700
GE2S - 16	16	36	111	107	4	22	17	52	900
GE2S - 18	18	42	112	108	4	25	19	53	1400
GE2S - 20	20	48	110	105	5	29	22	52	1500
GE2S - 22	22	48	125	120	5	29	23	58	1600
GE2S - 24	24	54	135	130	5	32	26	63	2000

Std. fittings

- up to 3 1/2" size - Male thread nipples
- 4" & 5" sizes - optional - male thread nipples or flanges
- 6" & above - 125 lbs. ANSI flange drilling

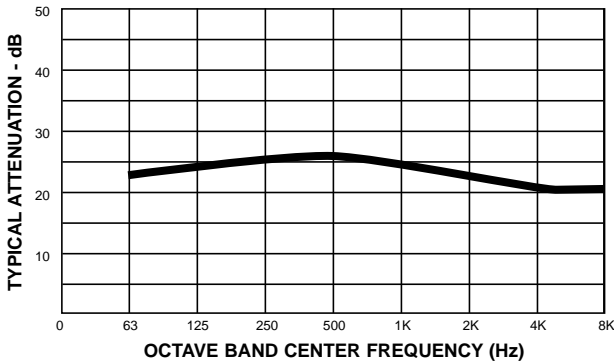
- Dimensions and weights are approximate and may change slightly with production models.
- Dimension in inches.
- Weight in lbs.

We specialize in custom designs and also provide various nozzle orientations to suit your specific requirements.

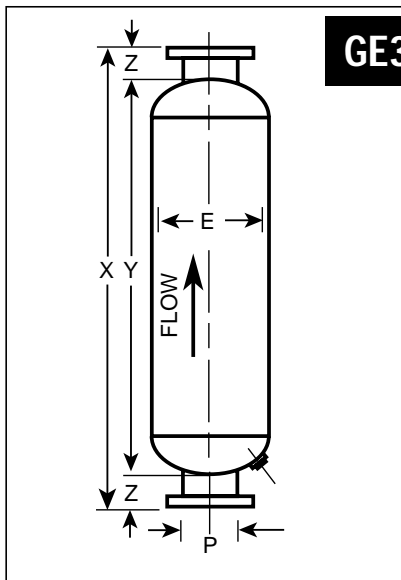
SPECIFICATIONS

GE 3 SERIES CHAMBER CONSTRUCTION SEMI-RESIDENTIAL GRADE SILENCERS

TYPICAL ATTENUATION CURVE

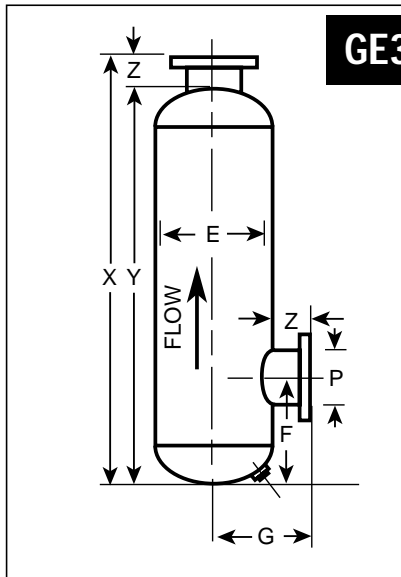


GE 3 Series chamber construction semi-residential grade silencers are recommended for use in industrial areas where ambient noise levels are comparatively high and where noise is a marginal factor. This can also be used on turbo charged engines for semi-residential area with light industry. The design consists of a multi-chamber, multi-tube arrangement to effectively reduce pulsations, and can be installed in horizontal or vertical position. The standard construction is sturdy, heavy duty, all welded carbon steel sheet and plates. The units 6" and above are provided with flanged connections drilled to 125 lbs. ANSI specifications. The external surfaces are painted with high heat black paint to ensure a longer service life. Custom designs available to suit specific nozzle orientations. The optional features include dual inlets or outlets, inspection openings, mounting brackets, support gussets, lifting lugs, special material of construction such as aluminized steel or stainless steel and special paint.



GE3

MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GE3 - 1	1	4 1/2	21	17	2	10
GE3 - 1 1/2	1 1/2	6 1/2	28	24	2	17
GE3 - 2	2	8	28	22	3	23
GE3 - 2 1/2	2 1/2	8	33	27	3	25
GE3 - 3	3	10	36	30	3	35
GE3 - 3 1/2	3 1/2	10	40	34	3	40
GE3 - 4	4	14	40	34	3	60
GE3 - 5	5	16	50	44	3	85
GE3 - 6	6	18	55	49	3	145
GE3 - 8	8	22	64	56	4	250
GE3 - 10	10	22	92	84	4	300
GE3 - 12	12	28	100	92	4	450
GE3 - 14	14	36	101	93	4	800
GE3 - 16	16	42	115	107	4	1300
GE3 - 18	18	42	140	132	4	1500
GE3 - 20	20	48	130	120	5	1600
GE3 - 22	22	48	152	142	5	1700
GE3 - 24	24	54	166	156	5	2300



GE3S

MODEL	PIPE SIZE P	E	X	Y	Z	G	F		WT.
							MIN.	MAX.	
GE3S - 1	1	4 1/2	19	17	2	SIDE CONNECTION AVAILABLE ON REQUEST FOR SIZES UP TO 2".			10
GE3S - 1 1/2	1 1/2	6 1/2	26	24	2				17
GE3S - 2	2	8	25	22	3				23
GE3S - 2 1/2	2 1/2	8	30	27	3	7	6	9	25
GE3S - 3	3	10	33	30	3	8	7	14	35
GE3S - 3 1/2	3 1/2	10	37	34	3	8	7	16	40
GE3S - 4	4	14	37	34	3	10	8	20	60
GE3S - 5	5	16	47	44	3	11	9	22	85
GE3S - 6	6	18	52	49	3	12	10	26	145
GE3S - 8	8	22	60	56	4	15	11	30	250
GE3S - 10	10	22	88	84	4	15	12	40	300
GE3S - 12	12	28	96	92	4	18	14	42	450
GE3S - 14	14	36	97	93	4	22	17	43	800
GE3S - 16	16	42	111	107	4	25	19	52	1300
GE3S - 18	18	42	136	132	4	25	20	60	1500
GE3S - 20	20	48	125	120	5	29	22	58	1600
GE3S - 22	22	48	147	142	5	29	23	63	1700
GE3S - 24	24	54	161	156	5	32	26	68	2300

Std. fittings

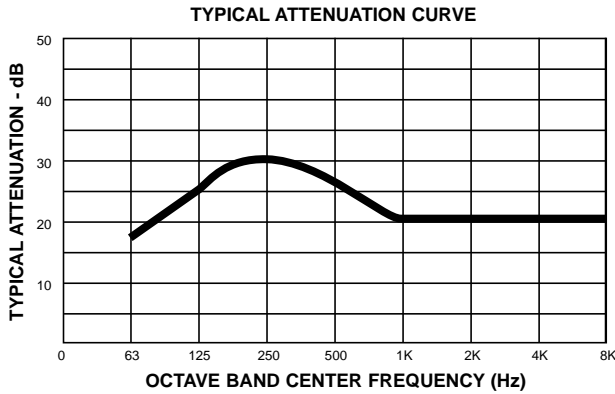
- up to 3 1/2" size - Male thread nipples
- 4" & 5" sizes - optional - male thread nipples or flanges
- 6" & above - 125 lbs. ANSI flange drilling

- Dimensions and weights are approximate and may change slightly with production models.
- Dimension in inches.
- Weight in lbs.

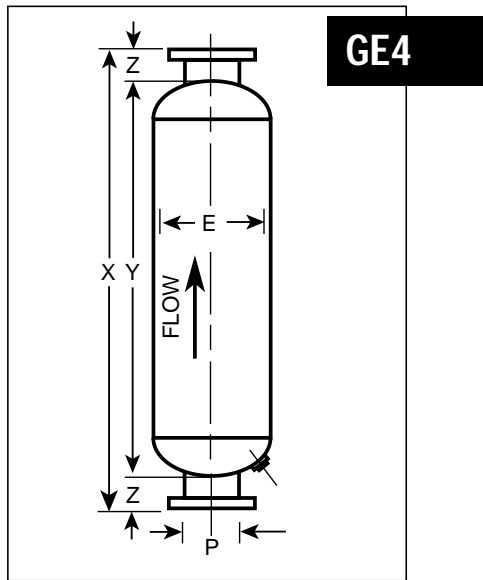
We specialize in custom designs and also provide various nozzle orientations to suit your specific requirements.

SPECIFICATIONS

GE 4 SERIES CHAMBER CONSTRUCTION RESIDENTIAL GRADE SILENCERS

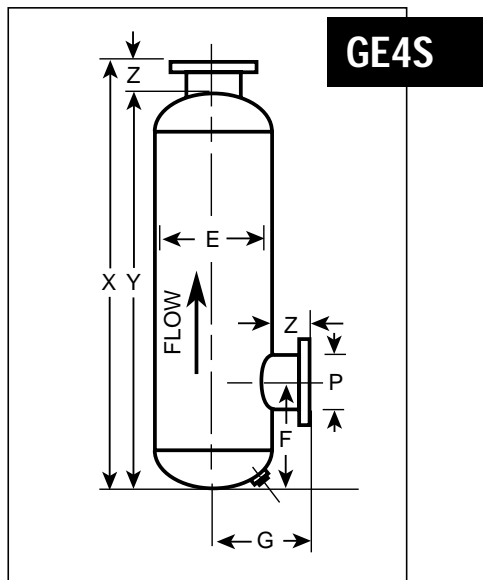


GE 4 Series chamber construction residential grade silencers are recommended for use in areas with light industry where noise is a significant factor and permitted levels are low. This can also be used on turbo charged engines for residential area. The design consists of a multi-chamber, multi-tube arrangement to effectively reduce pulsations, and can be installed in horizontal or vertical position. The standard construction is sturdy, heavy duty, all welded carbon steel sheet and plates. The units 6" and above are provided with flanged connections drilled to 125 lbs. ANSI specifications. The external surfaces are painted with high heat black paint to ensure a longer service life. Custom designs available to suit specific nozzle orientations. The optional features include dual inlets or outlets, inspection openings, mounting brackets, support gussets, lifting lugs, special material of construction such as aluminized steel or stainless steel and special paint.



GE4

MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GE4 - 1	1	4 1/2	21	17	2	10
GE4 - 1 1/2	1 1/2	6 1/2	28	24	2	17
GE4 - 2	2	8	28	22	3	23
GE4 - 2 1/2	2 1/2	8	33	27	3	25
GE4 - 3	3	10	39	33	3	35
GE4 - 3 1/2	3 1/2	10	46	40	3	40
GE4 - 4	4	14	49	43	3	70
GE4 - 5	5	16	56	50	3	100
GE4 - 6	6	18	64	58	3	175
GE4 - 8	8	22	75	67	4	300
GE4 - 10	10	26	87	79	4	350
GE4 - 12	12	30	112	104	4	800
GE4 - 14	14	36	114	106	4	950
GE4 - 16	16	42	126	118	4	1400
GE4 - 18	18	48	129	121	4	1550
GE4 - 20	20	48	142	132	5	1700
GE4 - 22	22	54	156	146	5	2100
GE4 - 24	24	60	181	171	5	3000



GE4S

MODEL	PIPE SIZE P	E	X	Y	Z	G	F		WT.
							MIN.	MAX.	
GE4S - 1	1	4 1/2	19	17	2	SIDE CONNECTION AVAILABLE ON REQUEST FOR SIZES UP TO 2".			10
GE4S - 1 1/2	1 1/2	6 1/2	26	24	2				17
GE4S - 2	2	8	25	22	3				23
GE4S - 2 1/2	2 1/2	8	30	27	3	7	6	9	25
GE4S - 3	3	10	36	33	3	8	7	15	35
GE4S - 3 1/2	3 1/2	10	43	40	3	8	7	18	40
GE4S - 4	4	14	46	43	3	10	8	22	70
GE4S - 5	5	16	53	50	3	11	9	25	100
GE4S - 6	6	18	61	58	3	12	10	30	175
GE4S - 8	8	22	71	67	4	15	11	35	300
GE4S - 10	10	26	83	79	4	17	13	38	350
GE4S - 12	12	30	108	104	4	19	15	43	800
GE4S - 14	14	36	110	106	4	22	17	48	950
GE4S - 16	16	42	122	118	4	25	19	55	1400
GE4S - 18	18	48	125	121	4	28	22	58	1550
GE4S - 20	20	48	137	132	5	29	23	60	1700
GE4S - 22	22	54	151	146	5	32	25	65	2100
GE4S - 24	24	60	176	171	5	35	27	72	3000

Std. fittings

- up to 3 1/2" size - Male thread nipples
- 4" & 5" sizes - optional - male thread nipples or flanges
- 6" & above - 125 lbs. ANSI flange drilling

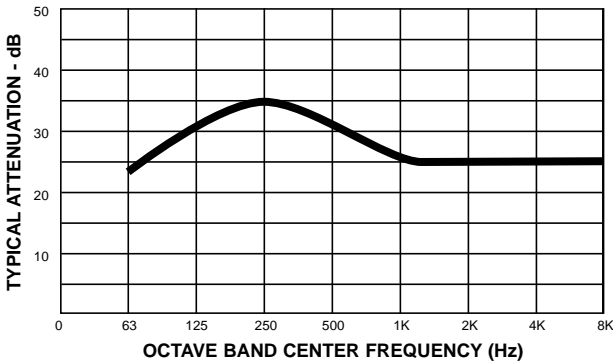
- Dimensions and weights are approximate and may change slightly with production models.
- Dimension in inches.
- Weight in lbs.

We specialize in custom designs and also provide various nozzle orientations to suit your specific requirements.

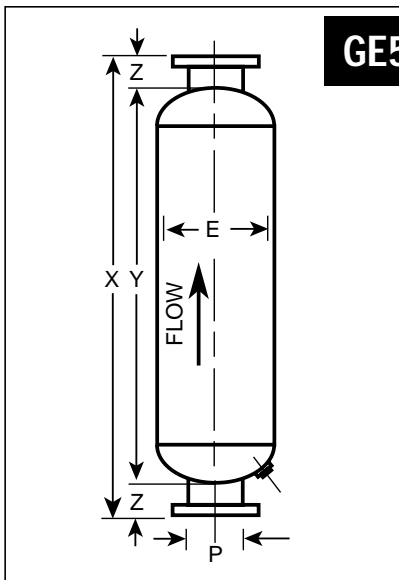
SPECIFICATIONS

GE 5 SERIES CHAMBER CONSTRUCTION CRITICAL GRADE SILENCERS

TYPICAL ATTENUATION CURVE

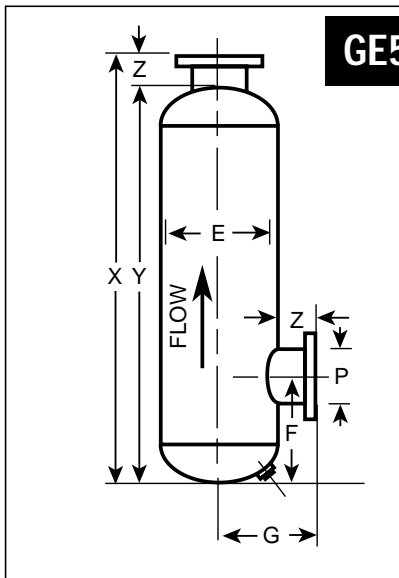


GE 5 Series chamber construction critical grade silencers are recommended for use in residential and school areas where noise is a critical factor. This can also be used on turbo charged engines in areas requiring high degree of silencing. The design consists of a multi-chamber, multi-tube arrangement to effectively reduce pulsations, and can be installed in horizontal or vertical position. The standard construction is sturdy, heavy duty, all welded carbon steel sheet and plates. The units 6" and above are provided with flanged connections drilled to 125 lbs. ANSI specifications. The external surfaces are painted with high heat black paint to ensure a longer service life. Custom designs available to suit specific nozzle orientations. The optional features include dual inlets or outlets, inspection openings, mounting brackets, support gussets, lifting lugs, special material of construction such as aluminized steel or stainless steel and special paint.



GE5

MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GE5 - 1	1	4 1/2	21	17	2	10
GE5 - 1 1/2	1 1/2	6 1/2	28	24	2	17
GE5 - 2	2	8	33	27	3	25
GE5 - 2 1/2	2 1/2	10	33	27	3	35
GE5 - 3	3	10	51	45	3	45
GE5 - 3 1/2	3 1/2	12	52	46	3	70
GE5 - 4	4	14	53	47	3	90
GE5 - 5	5	16	65	59	3	120
GE5 - 6	6	18	72	66	3	180
GE5 - 8	8	26	88	80	4	350
GE5 - 10	10	30	100	92	4	700
GE5 - 12	12	36	114	106	4	1000
GE5 - 14	14	36	127	119	4	1200
GE5 - 16	16	42	140	132	4	1700
GE5 - 18	18	48	176	168	4	2200
GE5 - 20	20	54	166	156	5	2700
GE5 - 22	22	60	180	170	5	3300
GE5 - 24	24	60	217	207	5	3800



GE5S

MODEL	PIPE SIZE P	E	X	Y	Z	G	F		WT.
							MIN.	MAX.	
GE5S - 1	1	4 1/2	19	17	2	SIDE CONNECTION AVAILABLE ON REQUEST FOR SIZES UP TO 2".			10
GE5S - 1 1/2	1 1/2	6 1/2	26	24	2				17
GE5S - 2	2	8	30	27	3				25
GE5S - 2 1/2	2 1/2	10	30	27	3	8	6	13	35
GE5S - 3	3	10	48	45	3	8	7	18	45
GE5S - 3 1/2	3 1/2	12	49	46	3	9	7	19	70
GE5S - 4	4	14	50	47	3	10	8	23	90
GE5S - 5	5	16	62	59	3	11	9	30	120
GE5S - 6	6	18	69	66	3	12	10	34	180
GE5S - 8	8	26	84	80	4	17	11	40	350
GE5S - 10	10	30	96	92	4	19	13	42	700
GE5S - 12	12	36	110	106	4	22	15	54	1000
GE5S - 14	14	36	123	119	4	22	17	60	1200
GE5S - 16	16	42	136	132	4	25	19	65	1700
GE5S - 18	18	48	172	168	4	28	21	85	2200
GE5S - 20	20	54	161	156	5	32	23	80	2700
GE5S - 22	22	60	175	170	5	35	25	86	3300
GE5S - 24	24	60	212	207	5	35	27	95	3800

Std. fittings

- up to 3 1/2" size - Male thread nipples
- 4" & 5" sizes - optional - male thread nipples or flanges
- 6" & above - 125 lbs. ANSI flange drilling

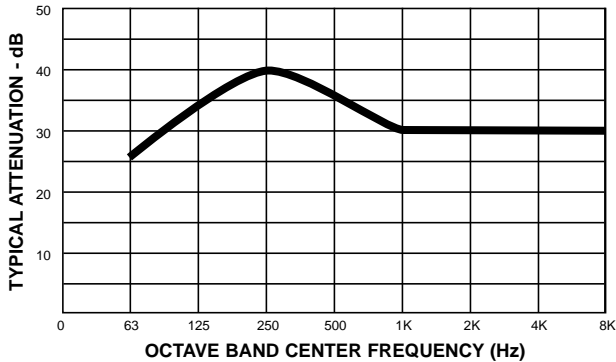
- Dimensions and weights are approximate and may change slightly with production models.
- Dimension in inches.
- Weight in lbs.

We specialize in custom designs and also provide various nozzle orientations to suit your specific requirements.

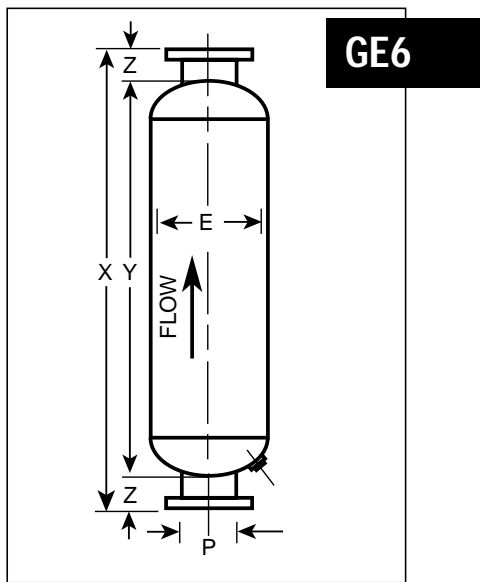
SPECIFICATIONS

GE 6 SERIES CHAMBER CONSTRUCTION HOSPITAL GRADE SILENCERS

TYPICAL ATTENUATION CURVE

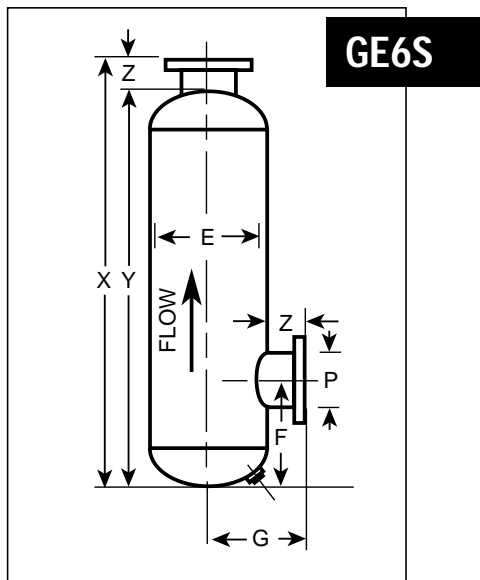


GE 6 Series chamber construction super critical or hospital grade silencers are recommended for use in noise sensitive locations such as hospitals, residential schools, hotels etc. where ambient noise level is extremely low and silencing requirements are maximum. The design consists of a multi-chamber, multi-tube arrangement to effectively reduce pulsations, and can be installed in horizontal or vertical position. The standard construction is sturdy, heavy duty, all welded carbon steel sheet and plates. The units 6" and above are provided with flanged connections drilled to 125 lbs. ANSI specifications. The external surfaces are painted with high heat black paint to ensure a longer service life. Custom designs available to suit specific nozzle orientations. The optional features include dual inlets or outlets, inspection openings, mounting brackets, support gussets, lifting lugs, special material of construction such as aluminized steel or stainless steel and special paint.



GE6

MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GE6 - 1	1	6 1/2	28	24	2	17
GE6 - 1 1/2	1 1/2	8	33	29	2	25
GE6 - 2	2	10	34	28	3	35
GE6 - 2 1/2	2 1/2	12	40	34	3	50
GE6 - 3	3	12	46	40	3	65
GE6 - 3 1/2	3 1/2	14	59	53	3	90
GE6 - 4	4	16	71	65	3	150
GE6 - 5	5	18	84	78	3	200
GE6 - 6	6	22	92	86	3	300
GE6 - 8	8	26	111	103	4	450
GE6 - 10	10	30	136	128	4	800
GE6 - 12	12	36	138	130	4	1100
GE6 - 14	14	36	168	160	4	1300
GE6 - 16	16	42	193	185	4	1800
GE6 - 18	18	48	213	205	4	2800
GE6 - 20	20	54	202	192	5	3200
GE6 - 22	22	60	228	218	5	3900
GE6 - 24	24	60	278	268	5	5000



GE6S

MODEL	PIPE SIZE P	E	X	Y	Z	G	F		WT.
							MIN.	MAX.	
GE6S - 1	1	6 1/2	26	24	2	SIDE CONNECTION AVAILABLE ON REQUEST FOR SIZES UP TO 2".			17
GE6S - 1 1/2	1 1/2	8	31	29	2				25
GE6S - 2	2	10	31	28	3				35
GE6S - 2 1/2	2 1/2	12	37	34	3	9	6	16	50
GE6S - 3	3	12	43	40	3	9	6	18	65
GE6S - 3 1/2	3 1/2	14	56	53	3	10	7	20	90
GE6S - 4	4	16	68	65	3	11	8	24	150
GE6S - 5	5	18	81	78	3	12	9	28	200
GE6S - 6	6	22	89	86	3	14	10	32	300
GE6S - 8	8	26	107	103	4	17	11	36	450
GE6S - 10	10	30	124	128	4	19	13	45	800
GE6S - 12	12	36	134	130	4	22	15	46	1100
GE6S - 14	14	36	164	160	4	22	17	58	1300
GE6S - 16	16	42	189	185	4	25	19	68	1800
GE1S - 18	18	48	209	205	4	28	21	80	2800
GE6S - 20	20	54	197	192	5	32	23	82	3200
GE6S - 22	22	60	223	218	5	35	25	86	3900
GE6S - 24	24	60	273	268	5	35	27	98	5000

Std. fittings

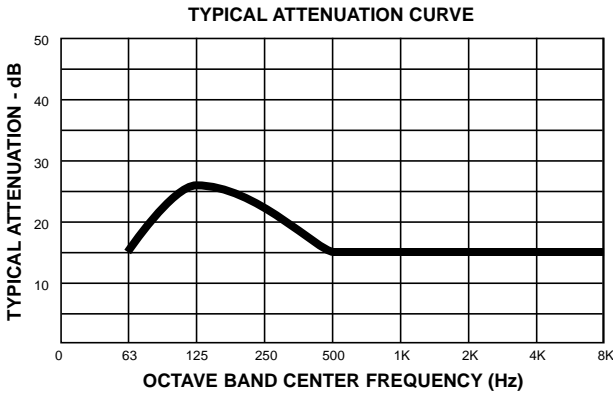
- up to 3 1/2" size - Male thread nipples
- 4" & 5" sizes - optional - male thread nipples or flanges
- 6" & above - 125 lbs. ANSI flange drilling

- Dimensions and weights are approximate and may change slightly with production models.
- Dimension in inches.
- Weight in lbs.

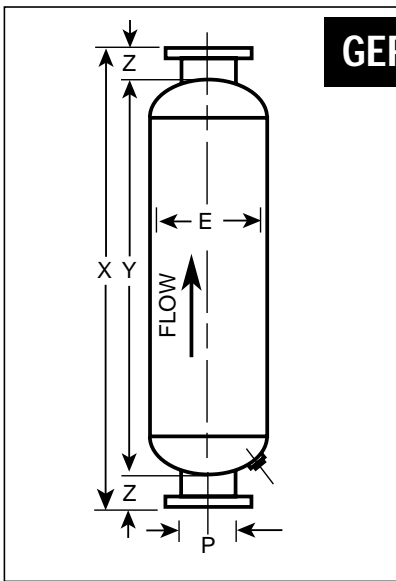
We specialize in custom designs and also provide various nozzle orientations to suit your specific requirements.

SPECIFICATIONS

GER 11 SERIES INDUSTRIAL GRADE CHAMBER RESONATOR SILENCERS



GER 11 Series chamber resonator type industrial grade silencers are recommended for use in industrial areas and semi-residential areas where ambient noise levels are comparatively high. These silencers are designed for turbo charged engines for very low pressure drop applications. The design consists of a chamber in which gas flows through ported tube and resonator which provides attenuation over a wide range of frequencies and can be installed in horizontal or vertical positions. Since the pressure drop requirements are very low, the side inlet configurations are not recommended for these silencers, however in some special cases the same can be designed to suit specific requirements. The standard construction is sturdy, heavy duty, all welded carbon steel sheet and plates. The units 6" and above are provided with flanged connections drilled to 125 lbs. ANSI specifications. The external surfaces are painted with high heat black paint to ensure a longer service life. The optional features include dual inlets or outlets, inspection openings, mounting brackets, support gussets, lifting lugs, special material of construction such as aluminized steel or stainless steel and special paint.



MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GER11 - 1	1	4 1/2	21	17	2	10
GER11 - 1 1/2	1 1/2	6 1/2	25	21	2	15
GER11 - 2	2	6 1/2	27	21	3	20
GER11 - 2 1/2	2 1/2	8	33	27	3	25
GER11 - 3	3	10	34	28	3	35
GER11 - 3 1/2	3 1/2	10	38	32	3	40
GER11 - 4	4	12	42	36	3	50
GER11 - 5	5	14	51	45	3	75
GER11 - 6	6	14	65	59	3	100
GER11 - 8	8	18	65	57	4	190
GER11 - 10	10	22	75	67	4	250
GER11 - 12	12	26	87	79	4	350
GER11 - 14	14	30	89	81	4	700
GER11 - 16	16	36	115	107	4	900
GER11 - 18	18	42	116	108	4	1400
GER11 - 20	20	48	115	105	5	1500
GER11 - 22	22	48	130	120	5	1600
GER11 - 24	24	54	140	130	5	2000

Std. fittings

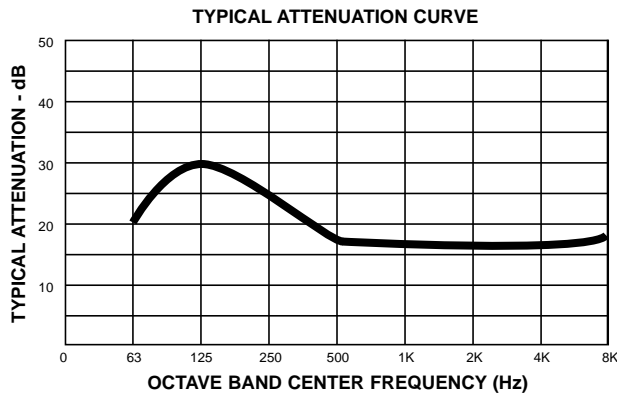
- up to 3 1/2" size - Male thread nipples
- 4" & 5" sizes - optional - male thread nipples or flanges
- 6" & above - 125 lbs. ANSI flange drilling

- Dimensions and weights are approximate and may change slightly with production models.
- Dimension in inches.
- Weight in lbs.

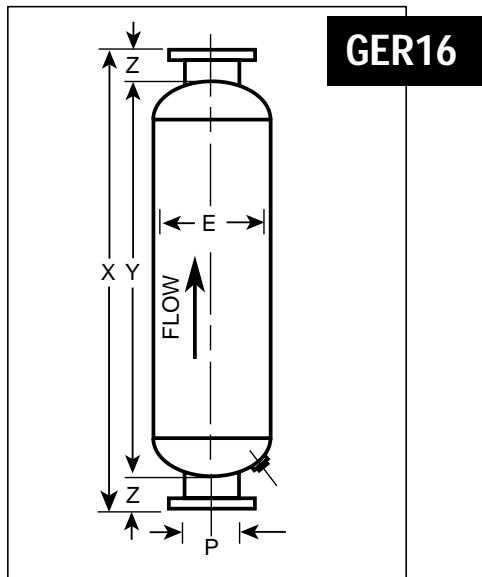
We specialize in designs and also provide various nozzle orientations to suit your specific requirements.

SPECIFICATIONS

GER 16 SERIES RESIDENTIAL GRADE CHAMBER RESONATOR SILENCERS



GER 16 Series chamber resonator type residential grade silencers are recommended for use in residential areas where noise is a critical factor and where permitted levels are low. These silencers are designed for turbo charged engines for very low pressure drop applications. The design consists of a chamber in which gas flows through ported tube and resonator which provides attenuation over a wide range of frequencies and can be installed in horizontal or vertical positions. Since the pressure drop requirements are very low, the side inlet configurations are not recommended for these silencers, however in some special cases the same can be designed to suit specific requirements. The standard construction is sturdy, heavy duty, all welded carbon steel sheet and plates. The units 6" and above are provided with flanged connections drilled to 125 lbs. ANSI specifications. The external surfaces are painted with high heat black paint to ensure a longer service life. Custom designs available to suit specific nozzle orientations. The optional features include dual inlets or outlets, inspection openings, mounting brackets, support gussets, lifting lugs, special material of construction such as aluminized steel or stainless steel and special paint.



MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GER16 - 1	1	4 1/2	21	17	2	10
GER16 - 1 1/2	1 1/2	6 1/2	28	24	2	17
GER16 - 2	2	8	28	22	3	23
GER16 - 2 1/2	2 1/2	8	33	27	3	25
GER16 - 3	3	10	39	33	3	35
GER16 - 3 1/2	3 1/2	10	46	40	3	40
GER16 - 4	4	14	49	43	3	70
GER16 - 5	5	16	56	50	3	100
GER16 - 6	6	18	64	58	3	175
GER16 - 8	8	22	75	67	4	300
GER16 - 10	10	26	87	79	4	350
GER16 - 12	12	30	112	104	4	800
GER16 - 14	14	36	114	106	4	950
GER16 - 16	16	42	126	118	4	1400
GER16 - 18	18	48	129	121	4	1550
GER16 - 20	20	48	142	132	5	1700
GER16 - 22	22	54	156	146	5	2100
GER16 - 24	24	60	181	171	5	3300

Std. fittings

- up to 3 1/2" size - Male thread nipples
- 4" & 5" sizes - optional - male thread nipples or flanges
- 6" & above - 125 lbs. ANSI flange drilling

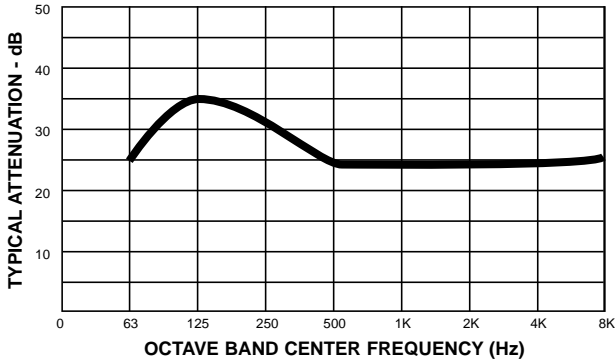
- Dimensions and weights are approximate and may change slightly with production models.
- Dimension in inches.
- Weight in lbs.

We specialize in custom designs and also provide various nozzle orientations to suit your specific requirements.

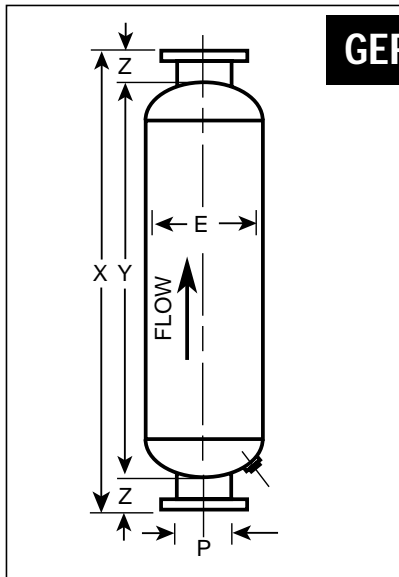
SPECIFICATIONS

GER 19 SERIES HOSPITAL GRADE CHAMBER RESONATOR SILENCERS

TYPICAL ATTENUATION CURVE



GER 19 Series chamber resonator type hospital grade silencers are recommended for use in noise sensitive locations such as hospitals and residential schools where ambient noise level is extremely low and the silencing requirements are maximum. These silencers are designed for turbo charged engines for very low pressure drop applications. The design consists of a chamber in which gas flows through ported tube and resonator which provides attenuation over a wide range of frequencies and can be installed in horizontal or vertical positions. Since the pressure drop requirements are very low, the side inlet configurations are not recommended for these silencers, however in some special cases the same can be designed to suit specific requirements. The standard construction is sturdy, heavy duty, all welded carbon steel sheet and plates. The units 6" and above are provided with flanged connections drilled to 125 lbs. ANSI specifications. The external surfaces are painted with high heat black paint to ensure a longer service life. Custom designs available to suit specific nozzle orientations. The optional features include dual inlets or outlets, inspection openings, mounting brackets, support gussets, lifting lugs, special material of construction such as aluminized steel or stainless steel and special paint.



MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GER19 - 1	1	6 1/2	28	24	2	17
GER19 - 1 1/2	1 1/2	8	33	29	2	25
GER19 - 2	2	10	34	28	3	35
GER19 - 2 1/2	2 1/2	12	40	34	3	50
GER19 - 3	3	12	46	40	3	65
GER19 - 3 1/2	3 1/2	14	59	53	3	90
GER19 - 4	4	16	71	65	3	150
GER19 - 5	5	18	84	78	3	200
GER19 - 6	6	22	92	86	3	300
GER19 - 8	8	26	111	103	4	450
GER19 - 10	10	30	136	128	4	800
GER19 - 12	12	36	138	130	4	1100
GER19 - 14	14	36	168	160	4	1300
GER19 - 16	16	42	193	185	4	1800
GER19 - 18	18	48	213	205	4	2800
GER19 - 20	20	54	202	192	5	3200
GER19 - 22	22	60	228	218	5	3900
GER19 - 24	24	60	278	268	5	5000

Std. fittings

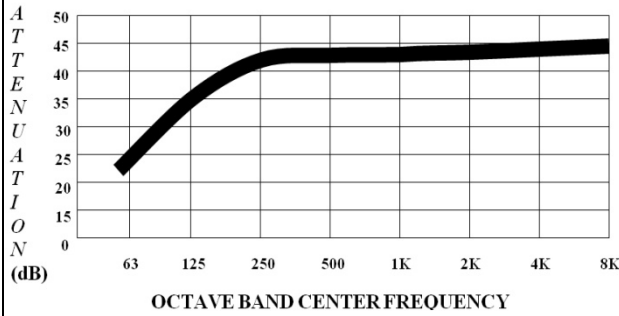
- up to 3 1/2" size - Male thread nipples
- 4" & 5" sizes - optional - male thread nipples or flanges
- 6" & above - 125 lbs. ANSI flange drilling

- Dimensions and weights are approximate and may change slightly with production models.
- Dimension in inches.
- Weight in lbs.

We specialize in custom designs and also provide various nozzle orientations to suit your specific requirements.

GE6HP SERIES HOSPITAL PLUS GRADE SILENCERS

GE6HP TYPICAL ATTENUATION CURVE

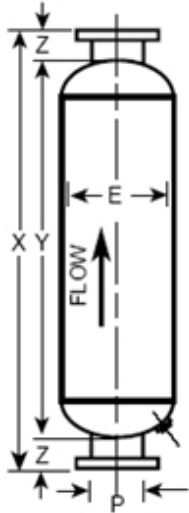


Specs & Performance

GE6HP series are combination chamber absorption type silencers. The Silencer provides high attenuation for silencing of exhausts. GE6HP silencers are manufactured with heavy gauge material and insulated nozzle for maximum silencing, and painted with STD high heat black paint or optional high heat silver. These silencers are recommended for use in demanding applications requiring more than regular hospital grade attenuation.

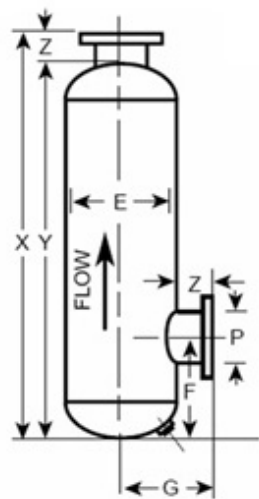
The silencer can be installed in both horizontal or in vertical orientation.

GE6HP



MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GE6HP-1	1	6 1/2	28	24	2	20
GE6HP-1 1/2	1 1/2	8	33	29	2	30
GE6HP-2	2	10	34	28	3	40
GE6HP-2 1/2	2 1/2	12	40	34	3	60
GE6HP-3	3	12	46	40	3	70
GE6HP-3 1/2	3 1/2	14	59	53	3	100
GE6HP-4	4	16	71	65	3	165
GE6HP-5	5	18	84	78	3	220
GE6HP-6	6	22	92	86	3	320
GE6HP-8	8	26	111	103	4	490
GE6HP-10	10	30	136	128	4	850
GE6HP-12	12	36	138	130	4	1160
GE6HP-14	14	36	168	160	4	1350
GE6HP-16	16	42	193	185	4	1850
GE6HP-18	18	48	213	205	4	2900
GE6HP-20	20	54	202	192	5	3300
GE6HP-22	22	60	228	218	5	4000
GE6HP-24	24	60	278	268	5	5100

GE6HPS



MODEL	PIPE SIZE P	E	X	Y	Z	G	F		WT.
							MIN	MAX	
GE6HPS-1	1	6 1/2	26	24	2	6	5	12	20
GE6HPS-1 1/2	1 1/2	8	31	29	2	6	5	14	30
GE6HPS-2	2	10	31	28	3	8	6	15	40
GE6HPS-2 1/2	2 1/2	12	37	34	3	9	6	16	60
GE6HPS-3	3	12	43	40	3	9	6	18	70
GE6HPS-3 1/2	3 1/2	14	56	53	3	10	7	20	100
GE6HPS-4	4	16	68	65	3	11	8	24	165
GE6HPS-5	5	18	81	78	3	12	9	28	220
GE6HPS-6	6	22	89	86	3	14	10	32	320
GE6HPS-8	8	26	107	103	4	17	11	36	490
GE6HPS-10	10	30	124	128	4	19	13	45	850
GE6HPS-12	12	36	134	130	4	22	15	46	1160
GE6HPS-14	14	36	164	160	4	22	17	58	1350
GE6HPS-16	16	42	189	185	4	25	19	68	1850
GE6HPS-18	18	48	209	205	4	28	21	80	2900
GE6HPS-20	20	54	197	192	5	32	23	82	3300
GE6HPS-22	22	60	223	218	5	35	25	86	4000
GE6HPS-24	24	60	273	268	5	35	27	98	5100

Inlet / Exhaust Fitting

- Up to 5" size - MNPT or FNPT
- 4" and Above 125/ 150# flange
- All sizes available in tube connection
- Other specialty flanges available at additional cost

Options

- Dual inlet
- Special finishing paint
- Aluminized steel
- Stainless Steel 304 & 316
- Flex & Expansion connection
- Lifting lugs & Mounting band
- Gussets & Trunion support
- Two piece design for catalyst

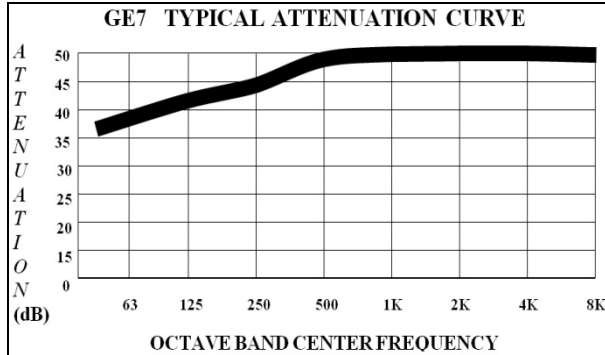
Contact E.I. Williams

silencer team for assistance in selecting the right silencer for your engine by calculating back pressure and recommending right silencer for the attenuation required.

*all dimensions are in inches
** weight specified in LB

GE7 SERIES

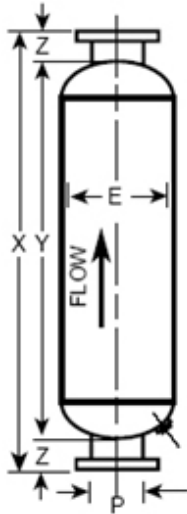
SUPER HOSPITAL PLUS GRADE SILENCERS



Specs & Performance

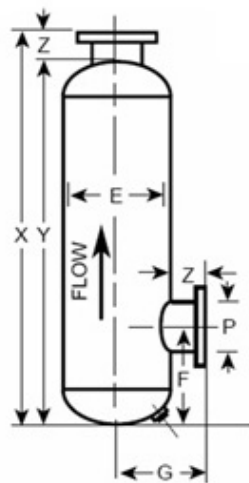
GE7 series are combination chamber absorption type silencers. The Silencer provides **highest** degree of silencing by reducing pulsation and internal vibrations. GE7 silencers are manufactured with insulation between double shells to reduce skin temperature and radiated noise for maximum silencing, and painted with STD high heat black paint or optional high heat silver. These silencers are recommended for use in extreme applications requiring very high measure of attenuation at all frequencies. The silencer can be installed in both horizontal or in vertical orientation.

GE 7



MODEL	PIPE SIZE P	E	X	Y	Z	WT.
GE7 - 1	1	8	31	27	2	70
GE7 - 1 1/2	1 1/2	10	33	29	2	90
GE7 - 2	2	12	40	34	3	110
GE7 - 2 1/2	2 1/2	14	59	53	3	170
GE7 - 3	3	16	72	66	3	210
GE7 - 3 1/2	3 1/2	18	76	70	3	270
GE7 - 4	4	22	84	76	4	390
GE7 - 5	5	26	97	89	4	550
GE7 - 6	6	30	110	102	4	850
GE7 - 8	8	36	134	126	4	1400
GE7 - 10	10	42	150	142	4	2000
GE7 - 12	12	42	160	152	4	2200
GE7 - 14	14	48	175	165	5	2600
GE7 - 16	16	48	200	190	5	3300
GE7 - 18	18	54	213	203	5	4000
GE7 - 20	20	60	228	218	5	5500
GE7 - 22	22	66	265	255	5	6000
GE7 - 24	24	66	278	268	5	7000

GE7S



MODEL	PIPE SIZE P	E	X	Y	Z	G	F		WT.
							MIN	MAX	
GE7S - 1	1	8	29	27	2	6	5	12	70
GE7S - 1 1/2	1 1/2	10	31	29	2	7	5	14	90
GE7S - 2	2	12	37	34	3	9	6	17	110
GE7S - 2 1/2	2 1/2	14	56	53	3	10	7	20	170
GE7S - 3	3	16	69	66	3	11	8	22	210
GE7S - 3 1/2	3 1/2	18	73	70	3	12	9	23	270
GE7S - 4	4	22	80	76	4	15	9	24	390
GE7S - 5	5	26	93	89	4	17	10	30	550
GE7S - 6	6	30	106	102	4	19	12	34	850
GE7S - 8	8	36	130	126	4	22	14	42	1400
GE7S - 10	10	42	146	142	4	25	16	48	2000
GE7S - 12	12	42	156	152	4	25	17	54	2200
GE7S - 14	14	48	170	165	5	29	19	60	2600
GE7S - 16	16	48	195	190	5	29	21	70	3300
GE7S - 18	18	54	208	203	5	32	23	80	4000
GE7S - 20	20	60	223	218	5	35	25	86	5500
GE7S - 22	22	66	260	255	5	38	28	94	6000
GE7S - 24	24	66	273	268	5	38	30	98	7000

Inlet / Exhaust Fitting

- Up to 5" size – MNPT or FNPT
- 4" and Above 125/ 150# flange
- All sizes available in tube connection
- Other specialty flanges available at additional cost

Options

- Dual inlet
- Special finishing paint
- Aluminized steel
- Stainless Steel 304 & 316
- Flex & Expansion connection
- Lifting lugs & Mounting band
- Gussets & Trunnion support
- Two piece design for catalyst

Contact E.I. Williams

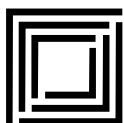
silencer team for assistance in selecting the right silencer for your engine by calculating back pressure and recommending right silencer for the attenuation required.

*all dimensions are in inches
** weight specified in LB

OTHER PRODUCTS AVAILABLE:

- ROTARY POSITIVE BLOWER INTAKE AND DISCHARGE SILENCERS
reference catalogue 1
- BASE SILENCERS FOR ROTARY POSITIVE BLOWERS
reference catalogue 2
- COMBINATION SILENCERS FOR ROTARY POSITIVE BLOWERS
reference catalogue 3
- FAN SILENCERS
reference catalogue 4
- CENTRIFUGAL COMPRESSOR SILENCERS
reference catalogue 5
- VENT SILENCERS
reference catalogue 6
- ENGINE SILENCERS
reference catalogue 7
- NOISE ENCLOSURES
reference catalogue 8

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STEEL DIVISION
BUILDING SOUND SOLUTIONS

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