

Industrial Silencer, Heat Recovery and Catalytic Specialists

HOPQUANG Silencers 2020
Exhaust Silencer Catalog
Specifications

Revision: HQ-ESCS-002



HQ

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Prices are subject to change without notice.
Prices are in Vietnam Dong

Custom orders may require payment in advance.
Custom items are non-returnable and non-refundable.

Returns must be approved by HOPQUANG Silencers in advance. Upon approval an RMA will be issued.
Return shipments are prepaid by customer, unless otherwise authorized by HOPQUANG Silencers.
Restocking charges may be applied.

Hopquang Silencers products are warranted for one year from date of purchase by the consumer against defects due to materials and workmanship only. In case of a defective product, HOPQUANG Silencers shall be the sole judge in determining the nature of the defect. HOPQUANG Silencers sole obligation shall be to repair, or at HOPQUANG Silencers option, to replace said products providing the originals are returned to HOPQUANG Silencers. All returned items must be pre-approved by HOPQUANG Silencers. All return shipments must be prepaid by the consumer. Defects or failures due to improper or careless installation, storage, handling, or application shall be excluded from this warranty. Failure to comply or contrary usage to HOPQUANG Silencers directions, specifications or design, of which HOPQUANG Silencers shall be sole judge, voids this warranty and all said products are specifically excluded from this warranty. No liability for damage or loss of any nature arising from or out of the use of this product, whether or not defective, is assumed. No liability is accepted for return transportation charges, following the repair or replacement, as previously mentioned, or for reinstallation costs. No other expressed or implied warranties exist in the absence of special written agreement between the consumer and HOPQUANG Silencers.

The attenuation curves outlined in the HOPQUANG catalogs represent the dynamic insertion loss at each frequency using the respective size silencer as indicated in the curves. Actual silenced noise levels may vary due to several factors such as engine, speed, loading, unsilenced noise, temperature and environmental conditions. The HOPQUANG curves in the sales literature represent the outlet dynamic insertion loss for noise only and does not include any structural, vibration, and/or flanking noise that may occur. The attenuation curves should be used as a guideline only due to countless variations.

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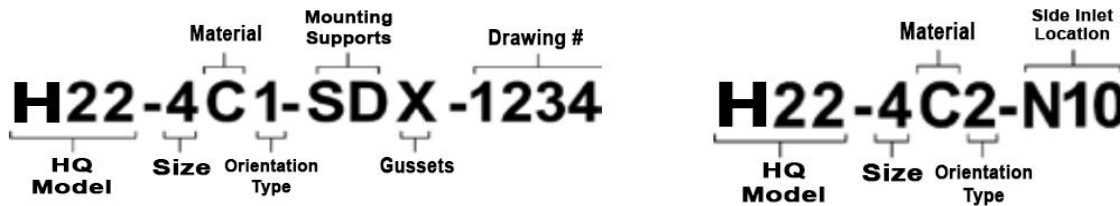
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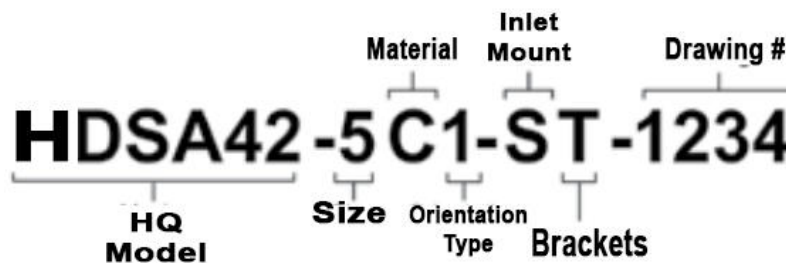


Guides - Nomenclature



Cylindrical Silencers Nomenclature

Model	-Size	Material	Orientation Type	-Side Inlet	-Mounting Supports	Gussets	- #
H Series		C Carbon Steel	1 End in, End out		BS "B" Brackets	I On Inlet	
HSA Series		S Stainless Steel 304	2 Side in, End out		ES "E" Brackets	O On Outlet	
HT Series		T Stainless Steel 316	3 End in, Side out		D3 "D" Legs (3)	X On Inlet and Outlet	
		L Stainless Steel 316L	4 Side in, Side out		D4 "D" Legs (4)		
		A Aluminized Steel	5 Dual side in, End out		AS "A" Trunnions		
			6 Dual mitered side in, End out		SD "F" Saddles		
			7 Dual end in, Side out				



Disk/Pancake and Thin Line Silencers Nomenclature

Model	-Size	Material	Orientation Type	Inlet Mount	Brackets	- #
HD Series		C Carbon Steel	1 Side in, End out	S Standard Mount	B Bottom	
HDSA Series		S Stainless Steel 304	2 Side in, Side out	F Flush Mount	T Top	
HR Series		T Stainless Steel 316	3 End in, End out			
		L Stainless Steel 316L	4 Dual side in, End out			
		A Aluminized Steel	5 Dual side in, Side out			
			6 Dual end in, End out			

Orientation: Orientation and mounting arrangements are viewed horizontally from Left/Inlet to Right/Outlet.

Drawing Numbers: Drawing numbers are usually reserved for customized products. Not all part numbers will have drawing numbers.

Side Inlet and Outlet Placement: Side inlet and outlet placements are viewed from the inlet end. Other placement options are available upon request. Mounting placement positions are noted as clock positions.

Side Inlet Manufactured Location: Side inlets are manufactured at the minimum/standard location ("N Min" dimension, see specs), but can be manufactured within noted min max range at no additional charge. The "N" dimension should be noted and added to nomenclature at time of order if other than the minimum/standard location. If location falls outside of Min Max range customizations may be possible, call for details and pricing.

Mounting Direction: Silencers may be mounted vertically or horizontally with the drain located accordingly. Specify prior to ordering if silencer is to be mounted vertically.

Dual Inlet: Specify engine model.

Guides - Nomenclature

Cylindrical Silencer Orientation Types

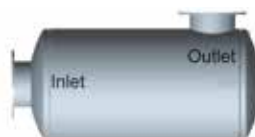
H, HSA and HT Series



Type 1 - EIEO
End In, End Out



Type 2 - SIEO
Side In, End Out



Type 3 - EISO
End In, Side Out



Type 4 - SISO
Side In, Side Out



Type 5 - Dual SIEO
Dual Side In, End Out



Type 6 - Dual Mitered SIEO
Dual Mitered Side In, End Out

Disk/Pancake and Thin Line Silencer Orientation Types

HD, HDSA and HR Series



Type 1 - SIEO - Side In, End Out



Type 2 - SISO - Side In, Side Out



Type 3 - EIEO - End In, End Out



Type 4 - Dual SIEO - Dual Side In, End Out



Type 5 - Dual SISO - Dual Side In, Side Out



Type 6 - Dual EIEO - Dual End In, End Out

Orientation: Orientation and mounting arrangements are viewed horizontally from Left/Inlet to Right/Outlet.

Guides - Nomenclature

Mounting Supports

Horizontal Support Options



ES Type "E"
Bracket Support (4)



SD Type "F"
Saddle Support (2)

Vertical Support Options



D3 Type "D"
Leg Support (3)



AS Type "A"
Trunnion Support



BS Type "B"
Bracket Support

Mounting Direction: Silencers may be mounted vertically or horizontally with the drain located accordingly. Specify prior to ordering if silencer is to be mounted vertically.

Side Inlet and Outlet Directional Placement



End In, Side Out at 3 o'clock



Side In 3 o'clock, Side Out 12 o'clock



Side in 6 o'clock, Side Out 9 o'clock

Side Inlet and Outlet Placement: Side inlet and outlet placements are viewed from the inlet end. Other placement options are available upon request. Mounting placement positions are noted as clock positions.

INDUSTRIAL CHAMBER SILENCER

15 to 20 dBA Noise Reduction

H11 OVERVIEW

The H11 is engineered for light industrial areas where background noise is relatively high and constant. The need for higher degrees of silencing should be minimal, keeps engine exhaust noise within existing levels.

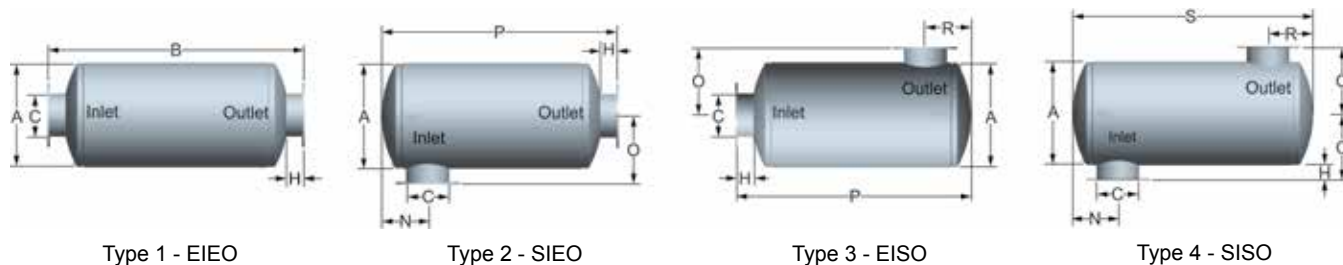
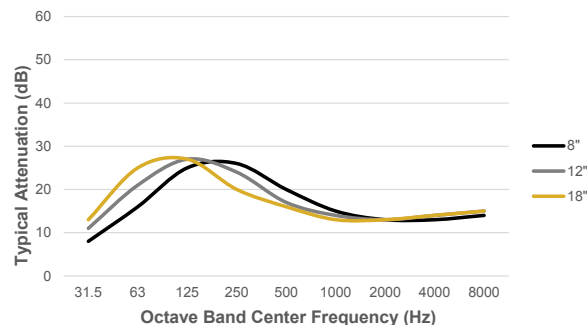
Typical application: Internal combustion engine exhausts in light industry areas with relatively constant background noise.

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: Sizes 3.5 and under MNPT, 4 and up ANSI pattern flanged
- Two chambers
- Drain connection

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



H11												
Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	R Min	R Max	S	H	Est Wt
H11-1.5	1.5	6	20	3		6	17	3		14	3	10
H11-2	2	6	20	3.5		6	17	3.5		14	3	11
H11-2.5	2.5	7	20	4		6.5	17	4		14	3	15
H11-3	3	8	24	4		7	21	4		18	3	20
H11-3.5	3.5	9	26	4.5	-Consult Factory-	7.5	23	4.5		20	3	26
H11-4	4	10	30	5		9	26	5		22	4	40
H11-5	5	12	34	6		10	30	6		26	4	51
H11-6	6	14	41	6.5		11	37	6.5		33	4	75
H11-8	8	16	48	8.5		12	44	8.5		40	4	108
H11-10	10	18	50	9.5		13	46	9.5		42	4	138
H11-12	12	22	60	11.5		15	56	11.5		52	4	203
H11-14	14	30	70	13.5		20	65	13.5		60	5	394
H11-16	16	36	80	16.5		23	75	16.5		70	5	535
H11-18	18	40	90	17.5		25	85	17.5		80	5	858

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.

RESIDENTIAL CHAMBER SILENCER

20 to 25 dBA Noise Reduction

H22 OVERVIEW

The H22 is engineered for residential and light industrial areas where background noise is relatively high and constant. The need for higher degrees of silencing should be minimal, keeps engine exhaust noise within existing levels.

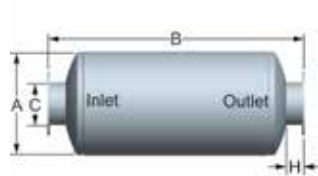
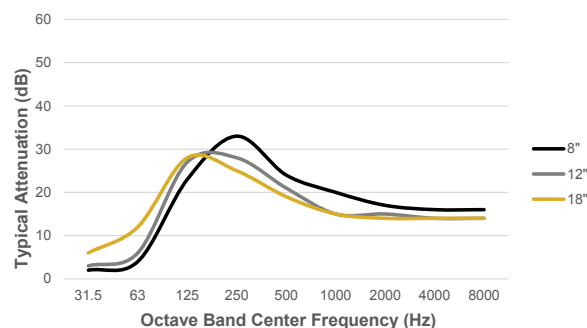
Typical application: Internal combustion engine exhausts in neighborhoods having high traffic or light industry with relatively constant background noise. Residents in these areas are typically accustomed to the noise or make some efforts to shield themselves from the ever present background noise.

FEATURES

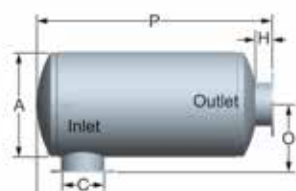
- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: ANSI pattern flanged
- Two chambers
- Drain connection

OPTIONS / ACCESSORIES

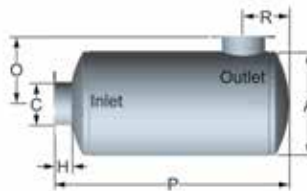
- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



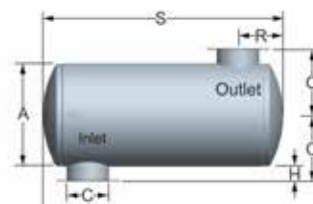
Type 1 - EIEO



Type 2 - SIEO



Type 3 - EISO



Type 4 - SISO

H22

Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	R Min	R Max	S	H	Est Wt
H22-4	4	14	36	6	11	11	32	6		28	4	60
H22-5	5	16	43	7	15	12	39	7		35	4	80
H22-6	6	18	49	7.5	18	13	45	7.5		41	4	102
H22-8	8	22	59	9.5	23	15	55	9.5		51	4	170
H22-10	10	26	64	11.5	26	17	60	11.5		56	4	270
H22-12	12	30	77	13	32	19	73	13		69	4	415
H22-14	14	36	83	15.5	34	23	78	15.5		73	5	550
H22-16	16	40	90	16.5	36	25	85	16.5		80	5	784
H22-18	18	45	96	18	39	27.5	91	18		86	5	931
H22-20	20	50	109	20.5	47	30	104	20.5		99	5	1357
H22-22	22	54	119	22.5	50	32	114	22.5		109	5	1764
H22-24	24	60	125	24	56	35	120	24		115	5	2105
H22-26	26	64	140	25.5	61	37	135	25.5		13	5	2477
H22-28	28	68	155	26.5	69	39	150	26.5		145	5	2856
H22-30	30	72	166	28	75	41	161	28		156	5	3259

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



CRITICAL CHAMBER SILENCER

25 to 32 dBA Noise Reduction

H32 OVERVIEW

The H32 is engineered for residential areas where background noise is present, but not objectionable. In these areas, installation of an M32 on an engine exhaust is intended to bring the noise level down to match the ambient noise levels.

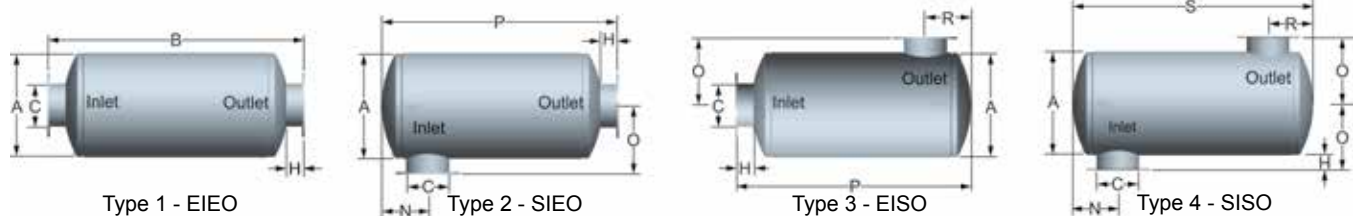
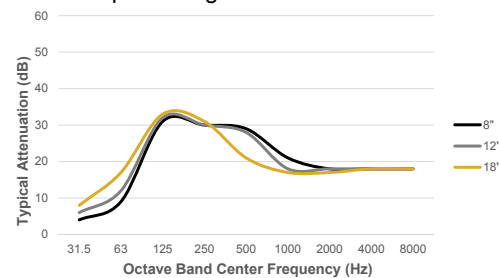
Typical application: Internal combustion engine exhausts in quieter residential area off main traffic areas and away from constant noise sources.

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: Sizes 3.5 and under MNPT, 4 and up ANSI pattern flanged
- Two chambers
- Drain connection

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



H32												
Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	R Min	R Max	S	H	Est Wt
H32-1	1	6	20	3	5	6	17	3		14	3	10
H32-1.5	1.5	9	30	4	11	7.5	27	4		24	3	23
H32-2	2	9	30	4.5	11	7.5	27	4.5		24	3	24
H32-2.5	2.5	10	34	5	12	8	31	5		28	3	33
H32-3	3	12	38	5.5	15	9	35	5.5		32	3	50
H32-3.5	3.5	14	42	6	16	10	39	6		36	3	65
H32-4	4	14	48	6	17	11	44	6		40	4	75
H32-5	5	16	57	7	23	12	53	7		49	4	100
H32-6	6	18	63	8	25	13	59	8		55	4	126
H32-8	8	22	74	9.5	32	15	70	9.5		66	4	203
H32-10	10	26	87	11.5	39	17	83	11.5		79	4	352
H32-12	12	30	102	13	45	19	98	13		94	4	519
H32-14	14	36	109	15.5	46	23	104	15.5		99	5	674
H32-16	16	40	119	16.5	51	25	114	16.5		109	5	973
H32-18	18	45	127	18	56	27.5	122	18		117	5	1165
H32-20	20	50	137	20.5	61	30	132	20.5		127	5	1656
H32-22	22	54	149	22.5	67	32	144	22.5		139	5	2107
H32-24	24	60	162	24	74	35	157	24		152	5	2566
H32-26	26	64	183	25.5	85	37	178	25.5		173	5	3031
H32-28	28	68	200	26.5	93	39	195	26.5		190	5	3468
H32-30	30	72	216	28	102	41	211	28		206	5	3992

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.

SUPER CRITICAL CHAMBER SILENCER

30 to 38 dBA Noise Reduction

H42 OVERVIEW

The H42 is engineered for quiet residential areas where background noise is relatively low, and super critical grade silencing is required.

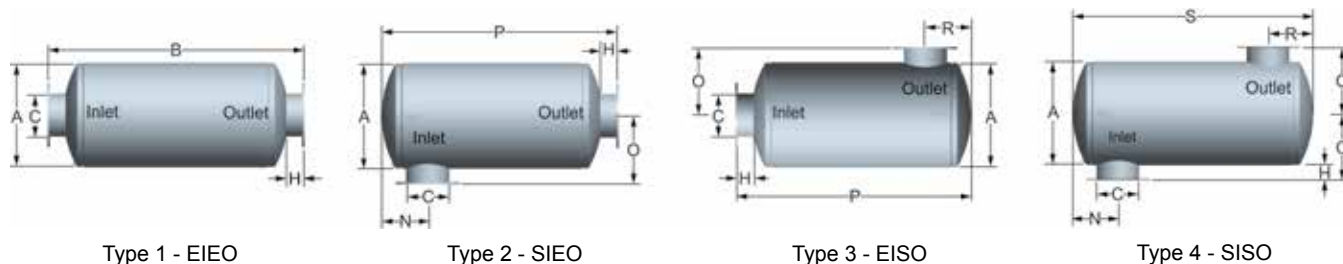
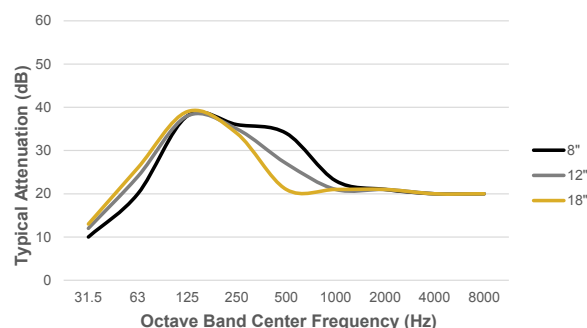
Typical application: Internal combustion engine exhausts in truly quiet residential areas where ambient noise levels are very low and the sound of birds singing and the soft hum of air conditioning units may be the noticeable noise features.

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: ANSI pattern flanged
- Two chambers
- Drain connection

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



H42												
Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	R Min	R Max	S	H	Est Wt
H42-4	4	16	51	6.5	18	12	47	6.5		43	4	90
H42-5	5	18	62	7	24	13	58	7		54	4	120
H42-6	6	22	69	8.5	26	15	65	8.5		61	4	175
H42-8	8	26	82	10	32	17	78	10		74	4	304
H42-10	10	30	102	12	45	19	98	12		94	4	484
H42-12	12	36	112	15	51	22	108	15		104	4	659
H42-14	14	40	120	15.5	52	25	115	15.5		110	5	930
H42-16	16	45	126	17	55	27.5	121	17		116	5	1140
H42-18	18	50	135	19.5	60	30	130	19.5		125	5	1623
H42-20	20	54	149	21.5	67	32	144	21.5		139	5	2055
H42-22	22	60	157	23	72	35	152	23		147	5	2464
H42-24	24	64	164	24.5	75	37	159	24.5		154	5	2803
H42-26	26	68	184	25.5	85	39	179	25.5		174	5	3282
H42-28	28	72	205	27	97	41	200	27		195	5	3788
H42-30	30	78	220	28.5	104	44	215	28.5		210	5	5293

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



HOSPITAL CHAMBER SILENCER

35 to 42 dBA Noise Reduction

H52 OVERVIEW

The M52 is engineered for reactive hospital grade noise reduction in heavy industrial areas where machinery operates continuously around a quiet locality. Suitable locations include hospitals, schools and quiet residential districts.

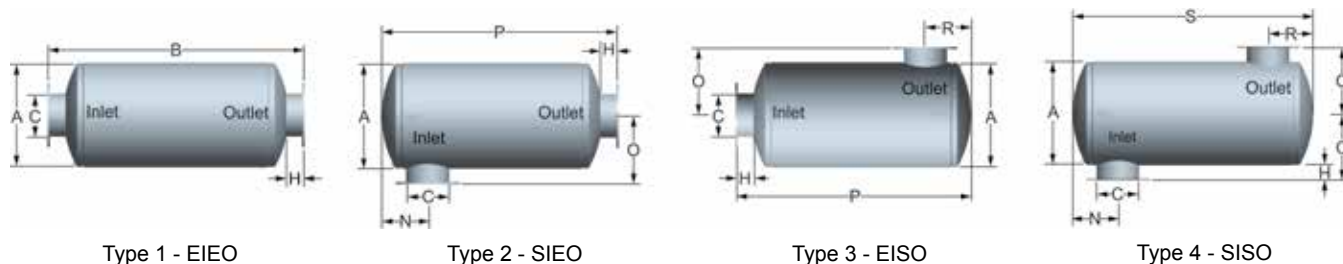
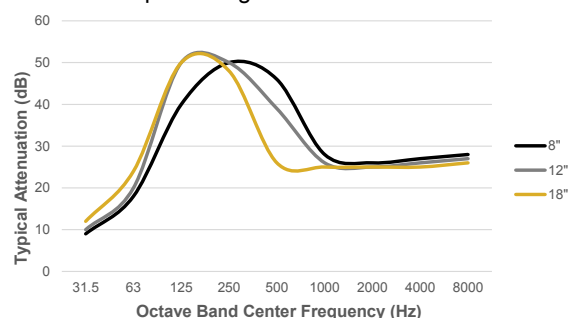
Typical application: Internal combustion engine exhausts in extremely low background noise areas, such as residential or hospital locations away from busy streets.

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: ANSI pattern flanged
- Sizes 6 and under are two chambered, 8 and above are three chambers
- Drain connection

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



H52												
Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	R Min	R Max	S	H	Est Wt
H52-4	4	18	62	7	26	13	58	7		54	4	177
H52-5	5	22	74	9	32	15	70	9		66	4	271
H52-6	6	26	85	11	38	17	81	11		77	4	342
H52-8	8	30	103	12	26	19	99	12		95	4	548
H52-10	10	36	118	14	32	22	114	14		110	4	783
H52-12	12	36	130	14	36	22	126	14	-Consult Factory-	122	4	870
H52-14	14	40	145	17	37	25	140	17		135	5	1242
H52-16	16	45	156	19	39	27.5	151	19		146	5	1543
H52-18	18	50	171	21	44	30	166	21		161	5	2252
H52-20	20	54	185	22	48	32	180	22		175	5	2818
H52-22	22	60	199	24	51	35	194	24		189	5	3429
H52-24	24	64	212	26	54	37	207	26		202	5	3916
H52-26	26	68	235	27	60	39	230	27		222	5	4576
H52-28	28	72	268	29	71	41	263	29		258	5	5390
H52-30	30	78	278	32	73	44	273	32		268	5	7246

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



HOSPITAL PLUS CHAMBER SILENCER

35 to 50 dBA Noise Reduction

H62 OVERVIEW

The H62 is engineered for a high degree of silencing in areas requiring hospital plus grade noise reductions. The M62 is a reactive silencer with absorptive type features without resorting to multiple silencers in series or custom designed silencers.

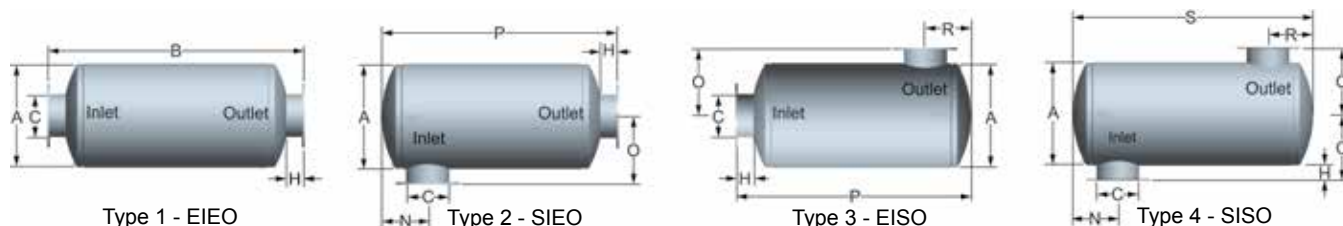
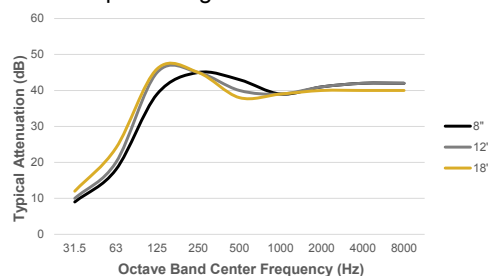
Typical application: Internal combustion engine exhausts in extremely low background noise areas, such as residential or hospital locations away from busy streets.

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: Sizes 3.5 and under MNPT, 4 and up ANSI pattern flanged
- Sizes 6 and under are two chambered, 8 and above are three chambers
- Drain connection

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



H62												
Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	R Min	R Max	S	H	Est Wt
H62-1.5	1.5	9	36	3.5	14	7.5	33	3.5		30	3	60
H62-2	2	10	40	4.5	16	8	37	4.5		34	3	68
H62-2.5	2.5	12	46	5.5	20	9	43	5.5		40	3	98
H62-3	3	14	50	6	21	10	47	6		44	3	126
H62-3.5	3.5	16	54	7	23	11	51	7		48	3	154
H62-4	4	18	62	7	26	13	58	7		54	4	191
H62-5	5	22	74	9	32	15	70	9		66	4	271
H62-6	6	26	85	11	38	17	81	11		77	4	376
H62-8	8	30	103	12	26	19	99	12		95	4	548
H62-10	10	36	118	14	32	22	114	14		110	4	844
H62-12	12	36	130	14	36	22	126	14		122	4	870
H62-14	14	40	145	17	37	25	140	17		135	5	1359
H62-16	16	45	156	19	39	27.5	151	19		146	5	1543
H62-18	18	50	171	21	44	30	166	21		161	5	2417
H62-20	20	54	185	22	48	32	180	22		175	5	2818
H62-22	22	60	199	24	51	35	194	24		189	5	3590
H62-24	24	64	212	26	54	37	207	26		202	5	3916
H62-26	26	68	235	27	60	39	230	27		225	5	4770
H62-28	28	72	268	29	71	41	263	29		258	5	5390
H62-30	30	78	278	32	73	44	273	32		268	5	7679

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



EXTREME CHAMBER SILENCER

40 to 55 dBA Noise Reduction

H72 OVERVIEW

The H72 is engineered for areas requiring extreme grade noise reductions and is a reactive and absorptive silencer designed to achieve maximum attenuation as well as minimize radiated noise from breakout, without resorting to multiple silencers in series or custom designed silencers.

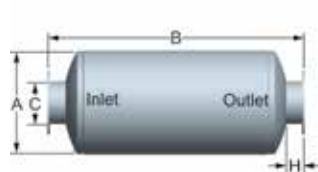
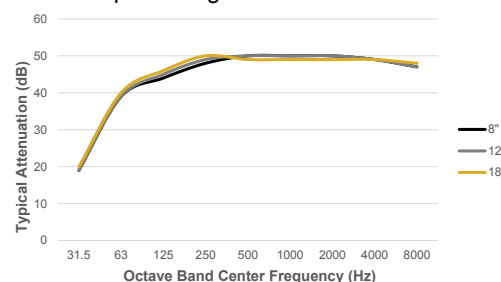
Typical application: Internal combustion engine exhausts in extremely low background noise areas, such as residential or hospital locations away from busy streets.

FEATURES

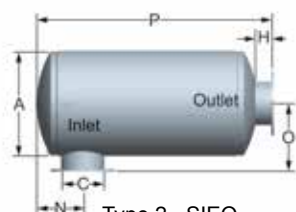
- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: Sizes 3.5 and under MNPT, 4 and up ANSI pattern flanged
- Sizes 6 and under are two chambered, 8 and above are three chambers
- Drain connection

OPTIONS / ACCESSORIES

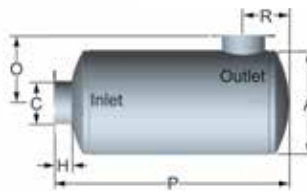
- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



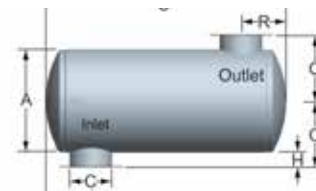
Type 1 - EIEO



Type 2 - SIEO



Type 3 - EISO



Type 4 - SISO

H72												
Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	R Min	R Max	S	H	Est Wt
H72-1.5	1.5	12	60	5		9	57	5		54	3	188
H72-2	2	12	64	6		9	61	6		58	3	204
H72-2.5	2.5	14	70	7		10	67	7		64	3	264
H72-3	3	16	74	7		11	71	7		68	3	329
H72-3.5	3.5	18	78	8		12	75	8		72	3	389
H72-4	4	22	84	8		15	80	8		76	4	498
H72-5	5	26	97	10		17	93	10		89	4	698
H72-6	6	30	110	12	-Consult Factory-	19	106	12	-Consult Factory-	102	4	944
H72-8	8	36	134	13		22	130	13		126	4	1511
H72-10	10	40	150	15		24	146	15		144	4	1910
H72-12	12	40	158	15		24	154	15		150	4	2084
H72-14	14	45	174	18		27.5	169	18		164	5	2549
H72-16	16	50	194	21		30	189	21		184	5	3237
H72-18	18	54	208	23		32	203	23		198	5	3944
H72-20	20	60	226	25		35	221	25		216	5	5443
H72-22	22	64	228	26		37	223	26		218	5	6006
H72-24	24	68	233	27		39	228	27		223	5	6638
H72-26	26	72	234	29		41	229	29		224	5	7196
H72-28	28	78	244	30		44	239	30		234	5	9513
H72-30	30	84	254	32		47	249	32		244	5	10807

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.

SUPER EXTREME CHAMBER SILENCER

45 to 60 dBA Noise Reduction

H82 OVERVIEW

The H82 is engineered for the highest degree of silencing in areas requiring super extreme grade noise reductions. The H82 is presently the top-of-the-line reactive and absorptive silencer designed to achieve maximum attenuation as well as minimize radiated noise from breakout, without resorting to multiple silencers in series or custom designed silencers.

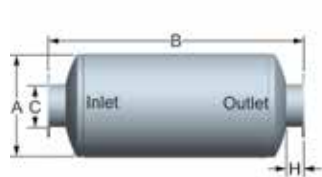
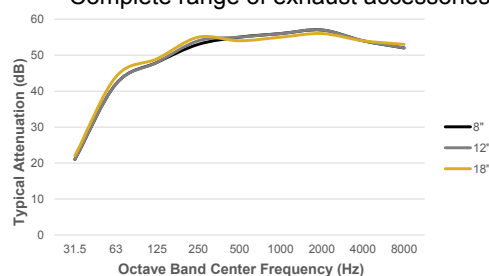
Typical application: Internal combustion engine exhausts in extremely low background noise areas, such as residential or hospital locations away from busy streets.

FEATURES

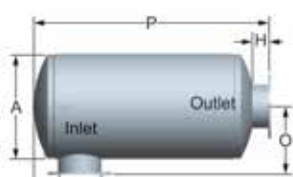
- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: Sizes 3.5 and under MNPT, 4 and up ANSI pattern flanged
- Sizes 6 and under are two chambered, 8 and above are three chambers
- Drain connection

OPTIONS / ACCESSORIES

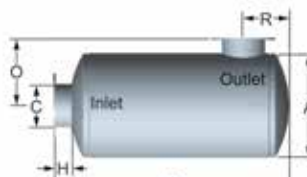
- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



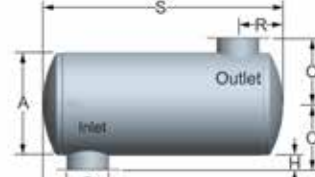
Type 1 - EIEO



Type 2 - SIEO



Type 3 - EISO



Type 4 - SISO

H82												
Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	R Min	R Max	S	H	Est Wt
H82-1.5	1.5	18	70	6		12	67	6		64	3	384
H82-2	2	20	74	6		13	71	6		68	3	460
H82-2.5	2.5	20	80	7		13	77	7		74	3	504
H82-3	3	22	84	8		14	81	8		78	3	583
H82-3.5	3.5	24	88	9		15	85	9		82	3	695
H82-4	4	26	94	10		17	90	10		86	4	788
H82-5	5	26	108	11	-Consult Factory-	17	104	11		100	4	913
H82-6	6	30	118	13		19	114	13		110	4	1172
H82-8	8	36	134	14		22	130	14		126	4	1715
H82-10	10	40	150	16		24	146	16		142	4	2164
H82-12	12	40	158	16		24	154	16		150	4	2356
H82-14	14	45	174	19		27.5	169	19		164	5	3017
H82-16	16	50	194	22		30	189	22		184	5	3805
H82-18	18	54	208	24		32	203	24		198	5	4502
H82-20	20	60	226	26		35	221	26		216	5	6185
H82-22	22	64	228	27		37	223	27		218	5	7086
H82-24	24	68	233	28		39	228	28		223	5	7810
H82-26	26	72	234	30		41	229	30		224	5	8419
H82-28	28	78	244	31		44	239	31		234	5	11045
H82-30	30	84	254	33		47	249	33		244	5	12545

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.

INDUSTRIAL SPARK ARRESTING CHAMBER SILENCER

12 to 20 dBA Noise Reduction

HSA10 OVERVIEW

The HSA10 silencer is engineered to provide an industrial grade attenuation with a highly efficient spark arrestor. Designed for use on the exhaust system of internal combustion engines where a fire hazard or dirt nuisance would exist from particles of carbon or ash in the exhaust stream.

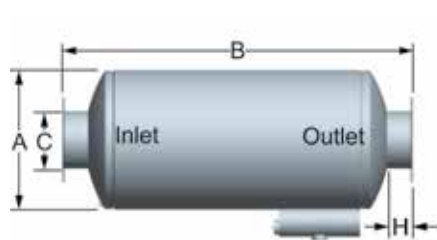
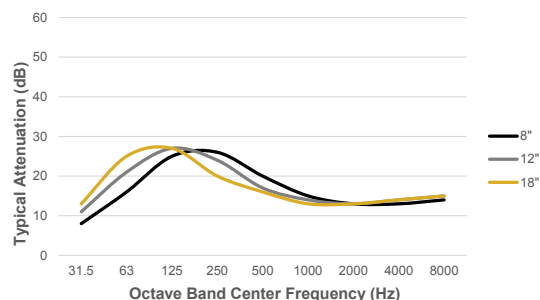
Typical Applications: Internal combustion engine exhausts, marine service, refineries/hazardous environments, and offshore drilling/production platforms

FEATURES

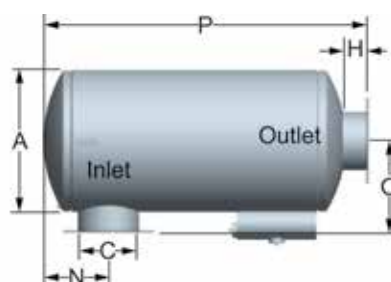
- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: ANSI pattern flanged
- Two chambers
- Drain connection

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



Type 1 - EIEO



Type 2 - SIEO

HSA10

Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	H	Est Wt
HSA10-4	4	10	30	5	-Consult Factory-	9	26	4	40
HSA10-5	5	12	34	6		10	30	4	51
HSA10-6	6	14	41	6.5		11	37	4	75
HSA10-8	8	16	48	8.5		12	44	4	108
HSA10-10	10	18	50	9.5		13	46	4	138
HSA10-12	12	22	60	11.5		15	56	4	203
HSA10-14	14	30	70	13.5		20	65	5	394
HSA10-16	16	36	80	16.5		23	75	5	535
HSA10-18	18	40	90	17.5		25	85	5	858

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



RESIDENTIAL SPARK ARRESTING CHAMBER SILENCER

20 to 25 dBA Noise Reduction

HSA11 OVERVIEW

The HSA11 silencer is engineered to provide a residential grade attenuation with a highly efficient spark arrestor. Designed for use on the exhaust system of internal combustion engines where a fire hazard or dirt nuisance would exist from particles of carbon or ash in the exhaust stream.

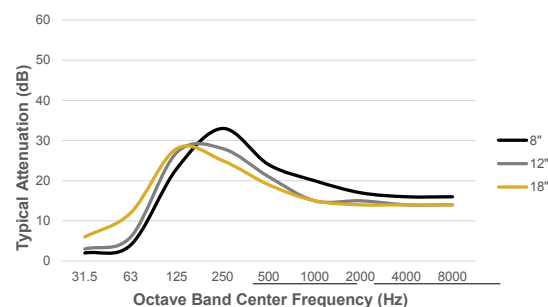
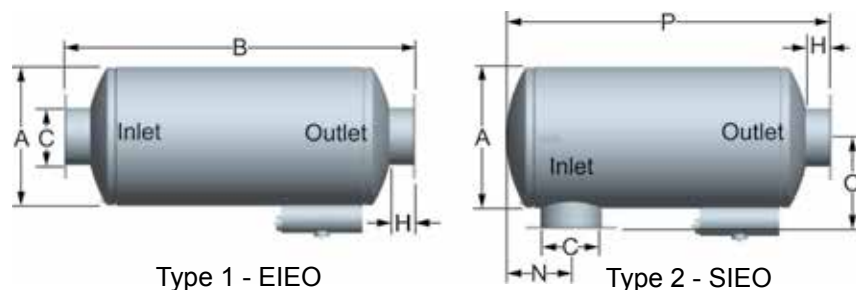
Typical Applications: Internal combustion engine exhausts, marine service, refineries/hazardous environments, and offshore drilling/production platforms

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: Sizes 3.5 and under MNPT, 4 and up ANSI pattern flanged
- Two chambers
- Drain connection

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



HSA11

Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	H	Est Wt
HSA11-1.5	1.5	9	20	3.5		7.5	17	3	20
HSA11-2	2	9	20	4		7.5	17	3	21
HSA11-2.5	2.5	10	24	4.5		8	21	3	28
HSA11-3	3	12	26	5		9	23	3	41
HSA11-3.5	3.5	14	30	5.5		10	27	3	55
HSA11-4	4	14	36	6		11	32	4	64
HSA11-5	5	16	43	7		12	39	4	88
HSA11-6	6	18	49	7.5		13	45	4	110
HSA11-8	8	22	59	9.5		15	55	4	178
HSA11-10	10	26	64	11.5		17	60	4	280
HSA11-12	12	30	77	13		19	73	4	416
HSA11-14	14	36	83	15.5		23	78	5	558
HSA11-16	16	40	90	16.5		25	85	5	793
HSA11-18	18	45	96	18		27.5	91	5	950
HSA11-20	20	50	109	20.5		30	104	5	1392
HSA11-22	22	54	119	22.5		32	114	5	1806
HSA11-24	24	60	125	24		35	120	5	2187
HSA11-26	26	64	140	25.5		37	135	5	2586
HSA11-28	28	68	155	26.5		39	150	5	2984
HSA11-30	30	72	166	28		41	161	5	3445

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



CRITICAL SPARK ARRESTING CHAMBER SILENCER

25 to 32 dBA Noise Reduction

HSA22 OVERVIEW

The HSA22 silencer is engineered to provide a critical grade attenuation with a highly efficient spark arrestor. Designed for use on the exhaust system of internal combustion engines where a fire hazard or dirt nuisance would exist from particles of carbon or ash in the exhaust stream.

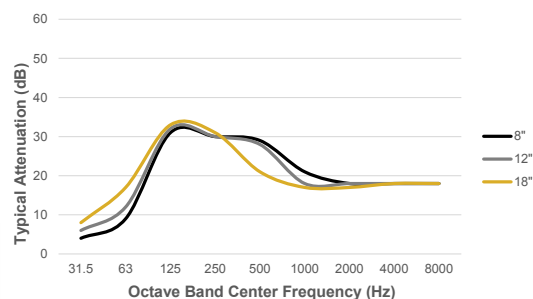
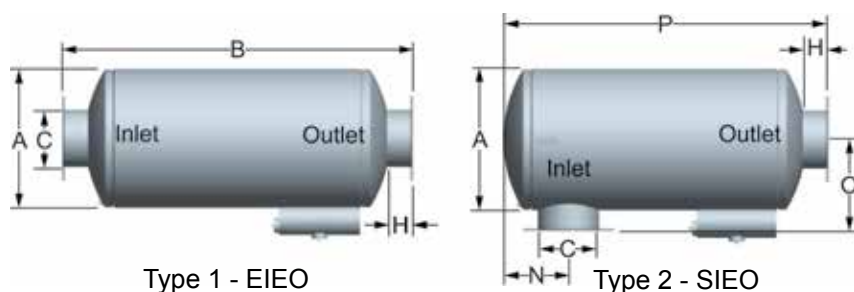
Typical Applications: Internal combustion engine exhausts, marine service, refineries/hazardous environments, and offshore drilling/production platforms

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: Sizes 3.5 and under MNPT, 4 and up ANSI pattern flanged
- Two chambers
- Drain connection

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



HSA22

Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	H	Est Wt
HSA22-1.5	1.5	9	30	4		7.5	27	3	27
HSA22-2	2	9	30	4.5		7.5	27	3	28
HSA22-2.5	2.5	10	34	5		8	31	3	37
HSA22-3	3	12	38	5.5		9	35	3	54
HSA22-3.5	3.5	14	42	6		10	39	3	70
HSA22-4	4	14	48	6		11	44	4	77
HSA22-5	5	16	57	7		12	53	4	108
HSA22-6	6	18	63	8		13	59	4	132
HSA22-8	8	22	74	9.5		15	70	4	205
HSA22-10	10	26	87	11.5		17	83	4	356
HSA22-12	12	30	102	13		19	98	4	518
HSA22-14	14	36	109	15.5		23	104	5	687
HSA22-16	16	40	119	16.5		25	114	5	976
HSA22-18	18	45	127	18		27.5	122	5	1169
HSA22-20	20	50	137	20.5		30	132	5	1676
HSA22-22	22	54	149	22.5		32	144	5	2127
HSA22-24	24	60	162	24		35	157	5	2627
HSA22-26	26	64	183	25.5		37	178	5	3106
HSA22-28	28	68	200	26.5		39	195	5	3561
HSA22-30	30	72	216	28		41	211	5	4140

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.

SUPER CRITICAL SPARK ARRESTING CHAMBER SILENCER

30 to 38 dBA Noise Reduction

HSA33 OVERVIEW

The HSA33 silencer is engineered to provide a super critical grade attenuation with a highly efficient spark arrestor. Designed for use on the exhaust system of internal combustion engines where a fire hazard or dirt nuisance would exist from particles of carbon or ash in the exhaust stream. Great for quiet residential areas where background noise is relatively low and super critical grade silencing with a spark arresting feature is required.

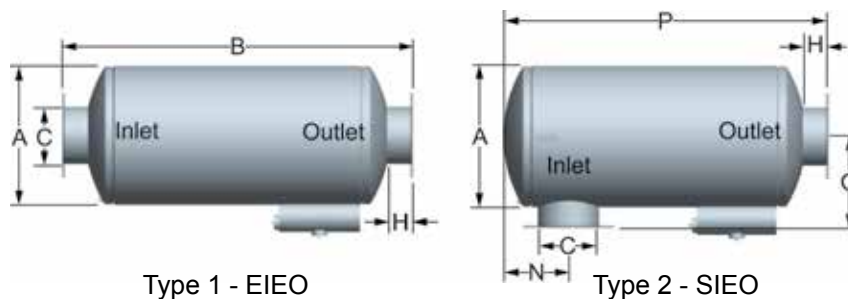
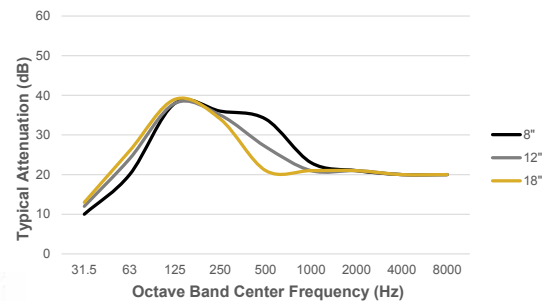
Typical Applications: Internal combustion engine exhausts, marine service, refineries/hazardous environments, and offshore drilling/production platforms

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: ANSI pattern flanged
- Two chambers
- Drain connection

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



Type 1 - EIEO

Type 2 - SIEO

HSA33

Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	H	Est Wt
HSA33-4	4	16	51	6.5		12	47	4	94
HSA33-5	5	18	62	7		13	58	4	130
HSA33-6	6	22	69	8.5		15	65	4	186
HSA33-8	8	26	82	10		17	78	4	318
HSA33-10	10	30	102	12		19	98	4	494
HSA33-12	12	36	112	15		22	108	4	690
HSA33-14	14	40	120	15.5		25	115	5	968
HSA33-16	16	45	126	17		27.5	121	5	1155
HSA33-18	18	50	135	19.5		30	130	5	1636
HSA33-20	20	54	149	21.5		32	144	5	2086
HSA33-22	22	60	157	23		35	152	5	2492
HSA33-24	24	64	164	24.5		37	159	5	2831
HSA33-26	26	68	184	25.5		39	179	5	3316
HSA33-28	28	72	205	27		41	200	5	3821
HSA33-30	30	78	220	28.5		44	215	5	5324

-Consult Factory-

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



HOSPITAL SPARK ARRESTING CHAMBER SILENCER

35 to 42 dBA Noise Reduction

HSA44 OVERVIEW

The HSA44 silencer is engineered to provide a hospital grade attenuation with a highly efficient spark arrestor. Designed for use on the exhaust system of internal combustion engines where a fire hazard or dirt nuisance would exist from particles of carbon or ash in the exhaust stream. Suitable for use where background noise is extremely low, such as residential or hospital locations away from busy streets.

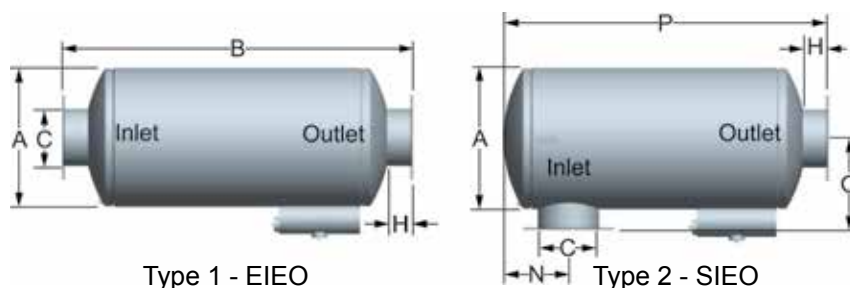
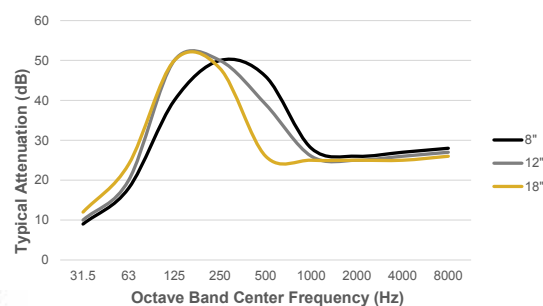
Typical Applications: Internal combustion engine exhausts, marine service, refineries/hazardous environments, and offshore drilling/production platforms

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: ANSI pattern flanged
- Sizes 6 and under are two chambered, 8 and above are three chambers
- Drain connection

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



Type 1 - EIEO

Type 2 - SIEO

HSA44

Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	H	Est Wt
HSA44-4	4	18	62	7		13	58	4	119
HSA44-5	5	22	74	9		15	70	4	189
HSA44-6	6	26	85	11		17	81	4	305
HSA44-8	8	30	103	12		19	99	4	517
HSA44-10	10	36	118	14		22	114	4	730
HSA44-12	12	36	130	14		22	126	4	820
HSA44-14	14	40	145	17		25	140	5	1188
HSA44-16	16	45	156	19		27.5	151	5	1461
HSA44-18	18	50	171	21		30	166	5	2111
HSA44-20	20	54	185	22		32	180	5	2664
HSA44-22	22	60	199	24		35	194	5	3237
HSA44-24	24	64	212	26		37	207	5	3693
HSA44-26	26	66	235	27		39	230	5	4313
HSA44-28	28	72	268	29		41	263	5	5053
HSA44-30	30	78	278	32		44	273	5	6866

-Consult Factory-

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



HOSPITAL PLUS SPARK ARRESTING CHAMBER SILENCER

35 to 50 dBA Noise Reduction

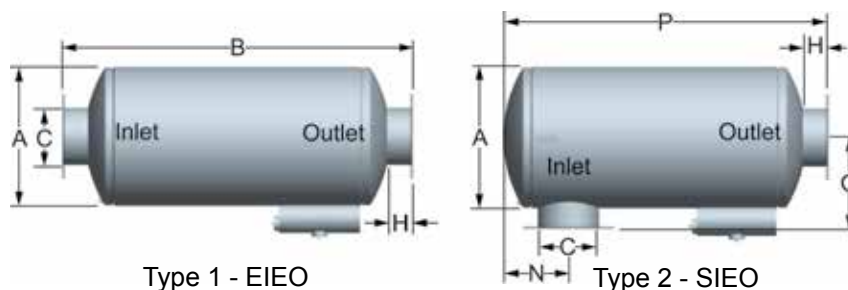
HSA55 OVERVIEW

The HSA55 silencer is engineered to provide the highest grade attenuation with a highly efficient spark arrestor. The HSA55 is a reactive silencer with absorptive type features without resorting to multiple silencers in series or custom designed silencers. Designed for use on the exhaust system of internal combustion engines where a fire hazard or dirt nuisance would exist from particles of carbon or ash in the exhaust stream. Suitable for use where background noise is extremely low, such as residential or hospital locations away from busy streets.

Typical Applications: Internal combustion engine exhausts, marine service, refineries/hazardous environments, and offshore drilling/production platforms

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Connections: ANSI pattern flanged
- Three chambers
- Drain connection

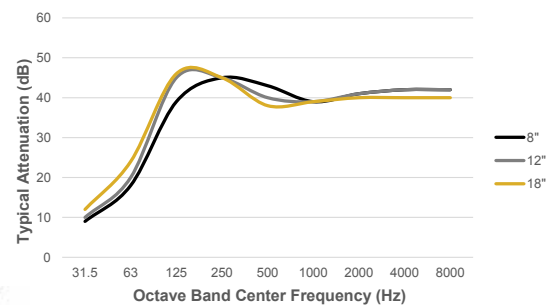


Type 1 - EIEO

Type 2 - SIEO

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



HSA55

Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	H	Est Wt
HSA55-4	4	18	62	7		13	58	4	200
HSA55-5	5	22	74	9		15	70	4	314
HSA55-6	6	26	85	11		17	81	4	382
HSA55-8	8	30	103	12		19	99	4	590
HSA55-10	10	36	118	14		22	114	4	829
HSA55-12	12	36	130	14		22	126	4	953
HSA55-14	14	40	145	17		25	140	5	1345
HSA55-16	16	45	156	19		27.5	151	5	1628
HSA55-18	18	50	171	21		30	166	5	2371
HSA55-20	20	54	185	22		32	180	5	2969
HSA55-22	22	60	199	24		35	194	5	3562
HSA55-24	24	64	212	26		37	207	5	4048
HSA55-26	26	68	235	27		39	230	5	4737
HSA55-28	28	72	268	29		41	263	5	5692
HSA55-30	30	78	278	32		44	273	5	7573

-Consult Factory-

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.

LOW PRESSURE DROP/TURBO SILENCER

13 to 16 dBA Noise Reduction

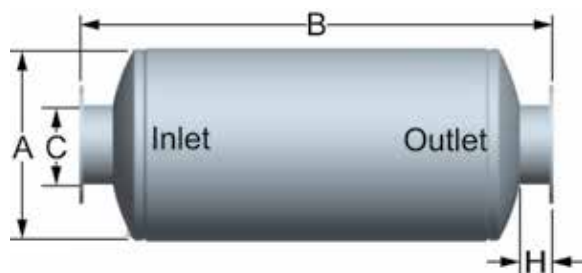
HT22 OVERVIEW

The HT22 silencer is engineered to provide silencing in areas where background noise is relatively high and moderate silencing is needed, and back pressure requirements call for a low pressure drop silencer.

Typical Applications: Internal combustion engine intakes and exhausts, as well as turbo charged reciprocating engines with low allowable back pressure

FEATURES

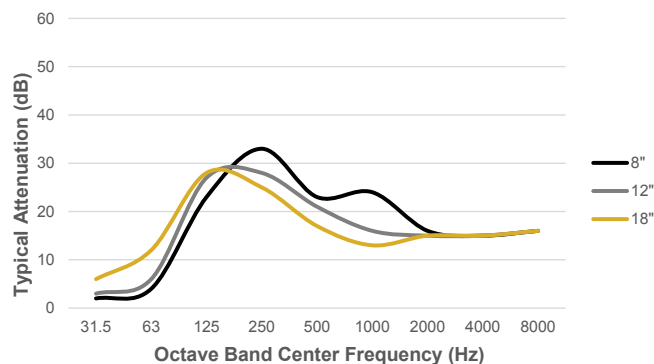
- Advanced acoustical design
- All welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Two chambers
- Drain connection



Type 1 - EIEO

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



HT22					
Part No.*	Size / ØC	ØA	B	H	Est Wt
HT22-4	4	14	36	4	64
HT22-5	5	16	43	4	87
HT22-6	6	18	49	4	109
HT22-8	8	22	59	4	181
HT22-10	10	26	64	4	290
HT22-12	12	30	77	4	440
HT22-14	14	36	83	5	593
HT22-16	16	40	90	5	813
HT22-18	18	45	96	5	963
HT22-20	20	50	109	5	1438
HT22-22	22	54	119	5	1845
HT22-24	24	60	125	5	2194
HT22-26	26	64	140	5	2573
HT22-28	28	68	155	5	2966
HT22-30	30	72	166	5	3381

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



LOW PRESSURE DROP/TURBO SILENCER

16 to 19 dBA Noise Reduction

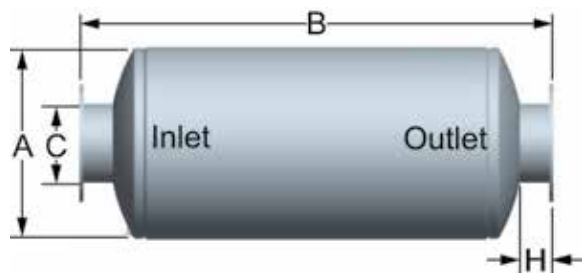
HT32 OVERVIEW

The HT32 silencer is engineered to provide average silencing in areas where some background noise is always present and effective, but not complete silencing is needed, and back pressure requirements call for a low pressure drop silencer.

Typical Applications: Internal combustion engine intakes and exhausts, as well as turbo charged reciprocating engines with low allowable back pressure

FEATURES

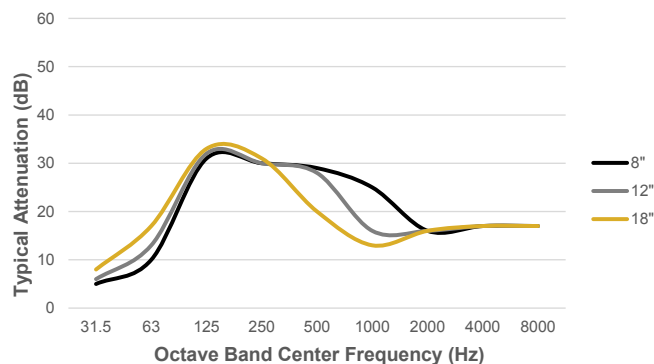
- Advanced acoustical design
- All welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Two chambers
- Drain connection



Type 1 - EIEO

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



HT32					
Part No.*	Size / ØC	ØA	B	H	Est Wt
HT32-4	4	14	48	4	80
HT32-5	5	16	57	4	109
HT32-6	6	18	63	4	136
HT32-8	8	22	74	4	217
HT32-10	10	26	87	4	377
HT32-12	12	30	102	4	552
HT32-14	14	36	109	5	731
HT32-16	16	40	119	5	1013
HT32-18	18	45	127	5	1204
HT32-20	20	50	137	5	1754
HT32-22	22	54	149	5	2199
HT32-24	24	60	162	5	2660
HT32-26	26	64	183	5	3135
HT32-28	28	68	200	5	3589
HT32-30	30	72	216	5	4124

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



LOW PRESSURE DROP/TURBO SILENCER

19 to 22 dBA Noise Reduction

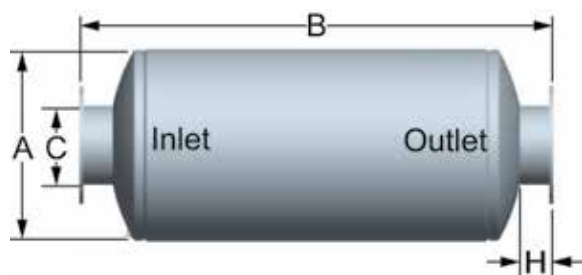
HT42 OVERVIEW

The HT42 silencer is engineered to provide better than average silencing in areas where ambient noise is relatively low, and back pressure requirements call for a low pressure drop silencer.

Typical Applications: Internal combustion engine intakes and exhausts, as well as turbo charged reciprocating engines with low allowable back pressure

FEATURES

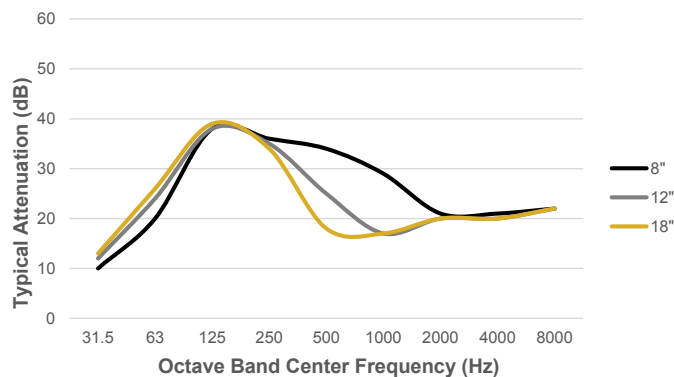
- Advanced acoustical design
- All welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Two chambers
- Drain connection



Type 1 - EIEO

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



HT42

Part No.*	Size / ØC	ØA	B	H	Est Wt
HT42-4	4	16	51	4	96
HT42-5	5	18	62	4	129
HT42-6	6	22	69	4	185
HT42-8	8	26	82	4	318
HT42-10	10	30	102	4	509
HT42-12	12	36	112	4	691
HT42-14	14	40	120	5	989
HT42-16	16	45	126	5	1182
HT42-18	18	50	135	5	1663
HT42-20	20	54	149	5	2156
HT42-22	22	60	157	5	2563
HT42-24	24	64	164	5	2911
HT42-26	26	68	184	5	3399
HT42-28	28	72	205	5	3921
HT42-30	30	78	220	5	5437

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



LOW PRESSURE DROP/TURBO SILENCER

23 to 25 dBA Noise Reduction

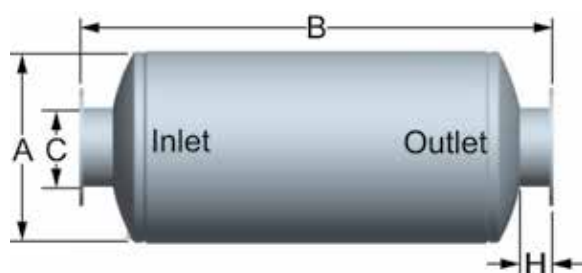
HT52 OVERVIEW

The HT52 silencer is engineered to provide silencing in areas where ambient noise is relatively low, and back pressure requirements call for a low pressure drop silencer.

Typical Applications: Internal combustion engine intakes and exhausts, as well as turbo charged reciprocating engines with low allowable back pressure

FEATURES

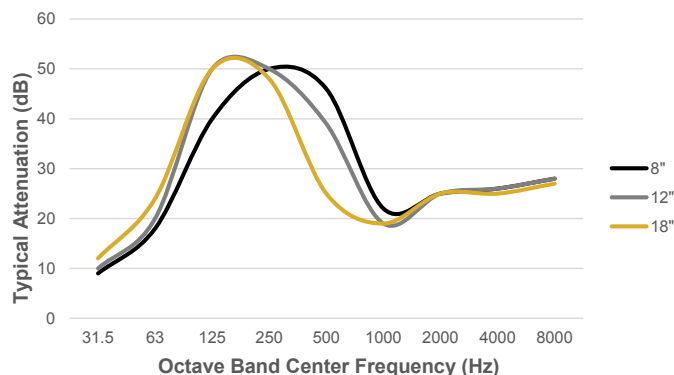
- Advanced acoustical design
- All welded construction and long service life
- Easily installed in any position
- High heat silicone black finish
- Sizes 6 and under have two chambers, 8 and above have three chambers
- Drain connection



Type 1 - EIEO

OPTIONS / ACCESSORIES

- Explosion relief cover
- Flexible connectors
- Companion flanges
- Cleanout openings
- Custom inlet/outlet size, location and multiple orientations available
- Horizontal or vertical support arrangements
- Aluminized steel, Stainless Steel 304 or 316 construction available
- Special paints and finishes available
- Complete range of exhaust accessories



HT52					
Part No.*	Size / ØC	ØA	B	H	Est Wt
HT52-4	4	18	62	4	120
HT52-5	5	22	74	4	188
HT52-6	6	26	85	4	308
HT52-8	8	30	103	4	525
HT52-10	10	36	118	4	755
HT52-12	12	36	130	4	835
HT52-14	14	40	145	5	1235
HT52-16	16	45	156	5	1500
HT52-18	18	50	171	5	2151
HT52-20	20	54	185	5	2777
HT52-22	22	60	199	5	3351
HT52-24	24	64	212	5	3811
HT52-26	26	68	235	5	4451
HT52-28	28	72	268	5	5221
HT52-30	30	78	278	5	7051

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



RESIDENTIAL LOW PROFILE PANCAKE CHAMBER

22 to 28 dBA Noise Reduction

HD22 OVERVIEW

The HD22 is engineered to provide a residential grade attenuation while minimizing space usage. It is an excellent choice for packaged power and process skids where space is a premium. Dual inlets and other custom designs can be easily incorporated. Suitable for use where background noise is relatively high and constant. The need for higher degrees of silencing should be minimal.

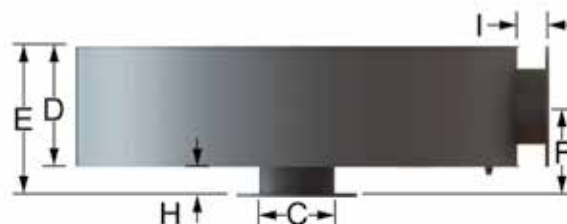
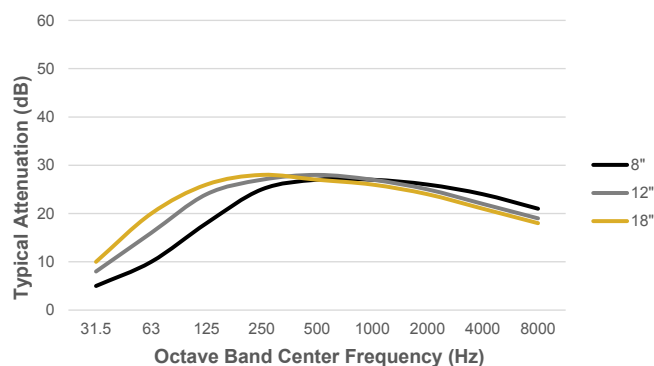
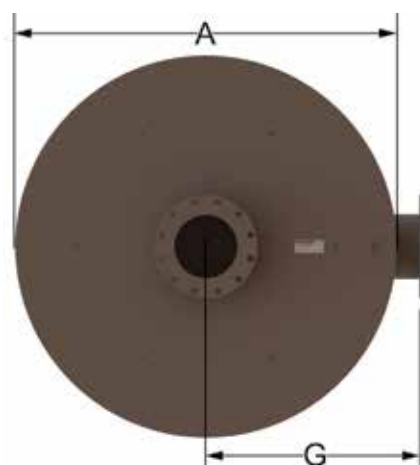
Typical Applications: Internal combustion engines, process skids, genset enclosures, as well as marine engines.

FEATURES

- Heavy duty, welded construction
- Low surface temperature design
- ANSI drilled 125/150 lb. flanges on inlet and outlet
- High-temperature, prime coated black finish
- Lift lugs

OPTIONS / ACCESSORIES

- Low surface temperature design
- Stainless steel construction: 304 or 316
- Custom inlet/outlet size, location and multiple orientations available
- Support brackets
- Special paints and finishes available
- 1" to 2" internal insulation available
- Complete range of exhaust accessories



HD22									
Part No.*	Size / ØC	ØA	D	E	F	G	H	I	Est Wt
HD22-4	4	22	7	11	7.5	15	4	4	103
HD22-5	5	24	8	12	8	16	4	4	119
HD22-6	6	28	8.5	12.5	8.25	18	4	4	147
HD22-8	8	33	13	17	10.5	20.5	4	4	242
HD22-10	10	41	13	17	10.5	24.5	4	4	329
HD22-12	12	45	17	21	12.5	26.5	4	4	464
HD22-14	14	52	18	22	13	30	4	4	539
HD22-16	16	59	21	25	14.5	33.5	4	4	716
HD22-18	18	65	23	27	15.5	36.5	4	4	825

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- A minimum 3" gap is recommended between the silencer and enclosure roof.
- Low Profile Orientations Available: Side In-End Out, Side In-Side Out, End In-End Out or Dual in options.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



CRITICAL LOW PROFILE PANCAKE CHAMBER

25 to 32 dBA Noise Reduction

HD32 OVERVIEW

The HD32 is engineered to provide a critical grade attenuation while minimizing space usage. It is an excellent choice for packaged power and process skids where space is a premium. Dual inlets and other custom designs can be easily incorporated. Design not only reduces surface temperature, but also radiated noise. Suitable for use where background noise is extremely low, such as residential or hospital locations away from busy streets.

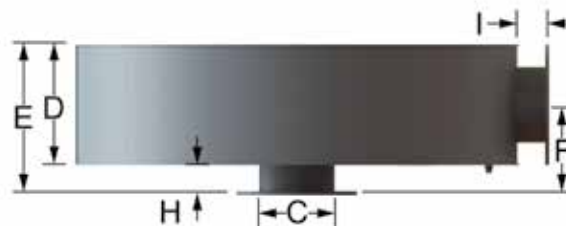
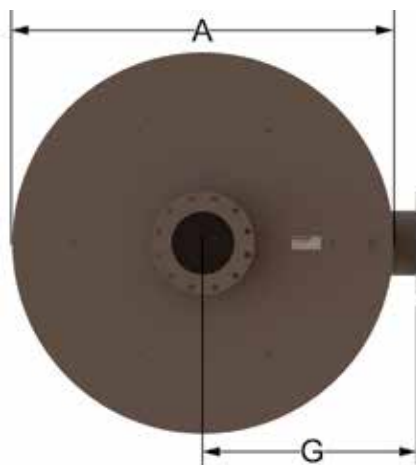
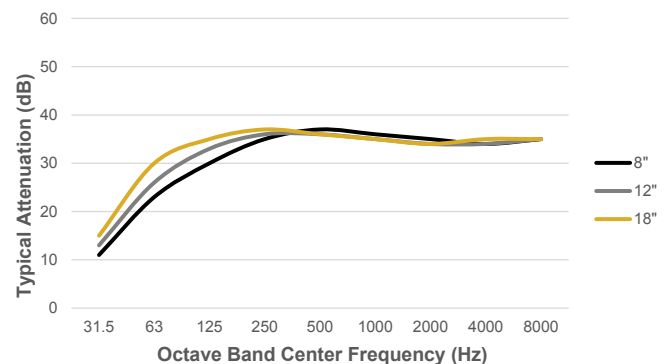
Typical Applications: Internal combustion engines, process skids, genset enclosures, as well as marine engines.

FEATURES

- Heavy duty, welded construction
- Low surface temperature design
- ANSI drilled 125/150 lb. flanges on inlet and outlet
- High-temperature, prime coated black finish
- 2" thick internal insulation within double wall construction
- Lift lugs

OPTIONS / ACCESSORIES

- Stainless steel construction: 304 or 316
- Custom inlet/outlet size, location and multiple orientations available
- Support brackets
- Special paints and finishes available
- 1" internal insulation available
- Complete range of exhaust accessories



HD32

Part No.*	Size / ØC	ØA	D	E	F	G	H	I	Est Wt
HD32-4	4	28	9	13	8.5	18	4	4	130
HD32-5	5	29	11	15	9.5	18.5	4	4	150
HD32-6	6	33	12	16	10	20.5	4	4	192
HD32-8	8	45	14	18	11	26.5	4	4	341
HD32-10	10	52	16	20	12	30	4	4	561
HD32-12	12	62	18	22	13	35	4	4	816
HD32-14	14	64	23	28	16.5	37	5	5	950
HD32-16	16	74	25	30	17.5	42	5	5	1388
HD32-18	18	84	27	32	18.5	47	5	5	1856
HD32-20	20	92	28	33	19	51	5	5	2186

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- A minimum 3" gap is recommended between the silencer and enclosure roof.
- Low Profile Orientations Available: Side In-End Out, Side In-Side Out, End In-End Out or Dual in options.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



SUPER CRITICAL LOW PROFILE PANCAKE CHAMBER

30 to 37 dBA Noise Reduction

HD42 OVERVIEW

The HD42 is engineered to provide a super critical grade attenuation while minimizing space usage. It is an excellent choice for packaged power and process skids where space is a premium. Dual inlets and other custom designs can be easily incorporated. Design not only reduces surface temperature, but also radiated noise. Suitable for use where background noise is extremely low, such as residential or hospital locations away from busy streets.

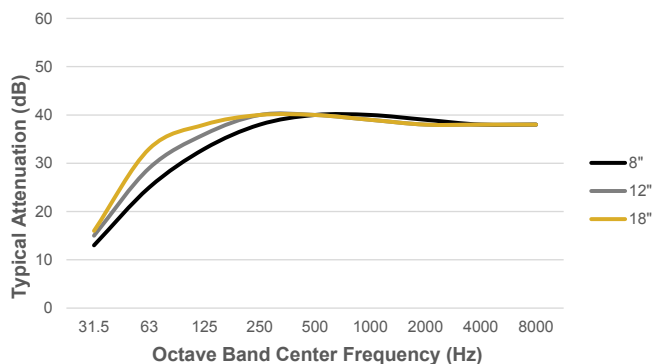
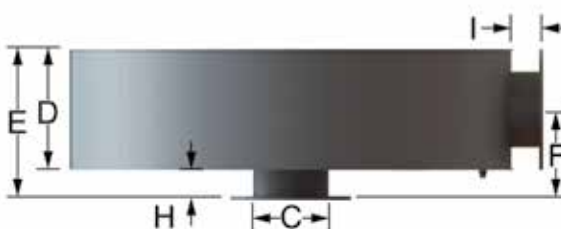
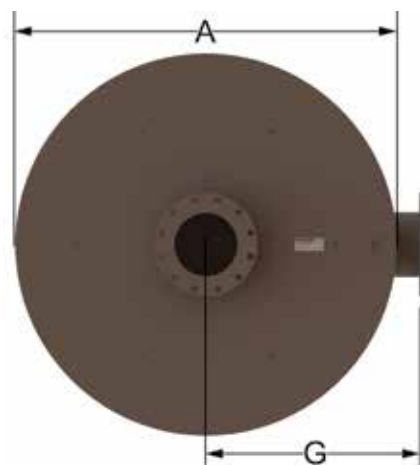
Typical Applications: Internal combustion engines, process skids, genset enclosures, as well as marine engines.

FEATURES

- Heavy duty, welded construction
- Low surface temperature design
- ANSI drilled 125/150 lb. flanges on inlet and outlet
- High-temperature, prime coated black finish
- 2" thick internal insulation within double wall construction
- Lift lugs

OPTIONS / ACCESSORIES

- Stainless steel construction: 304 or 316
- Custom inlet/outlet size, location and multiple orientations available
- Support brackets
- Special paints and finishes available
- 1" internal insulation available
- Complete range of exhaust accessories



HD42

Part No.*	Size / ØC	ØA	D	E	F	G	H	I	Est Wt
HD42-4	4	32	10	14	9	20	4	4	165
HD42-5	5	32	11	15	9.5	20	4	4	174
HD42-6	6	38	12	16	10	23	4	4	238
HD42-8	8	52	14	18	11	30	4	4	518
HD42-10	10	59	16	20	12	33.5	4	4	701
HD42-12	12	70	18	22	13	39	4	4	984
HD42-14	14	70	24	29	17	40	5	5	1104
HD42-16	16	75	28	33	19	42.5	5	5	1518
HD42-18	18	86	30	35	20	48	5	5	2006
HD42-20	20	94	32	37	21	52	5	5	2375

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- A minimum 3" gap is recommended between the silencer and enclosure roof.
- Low Profile Orientations Available: Side In-End Out, Side In-Side Out, End In-End Out or Dual in options.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



HOSPITAL LOW PROFILE PANCAKE CHAMBER

35 to 42 dBA Noise Reduction

HD52 OVERVIEW

The HD52 is engineered to provide a hospital grade attenuation while minimizing space usage. It is an excellent choice for packaged power and process skids where space is a premium. Dual inlets and other custom designs can be easily incorporated. Design not only reduces surface temperature, but also radiated noise. Suitable for use where background noise is extremely low, such as residential or hospital locations away from busy streets.

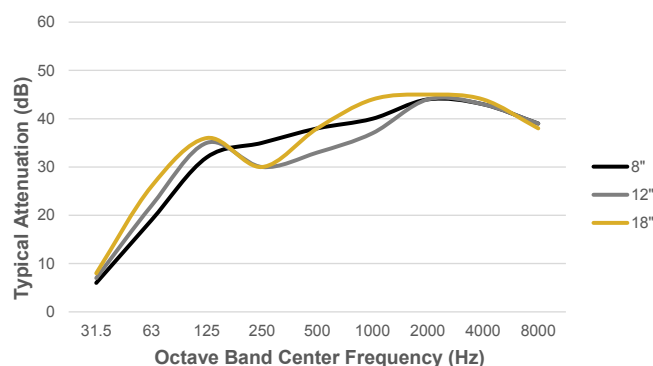
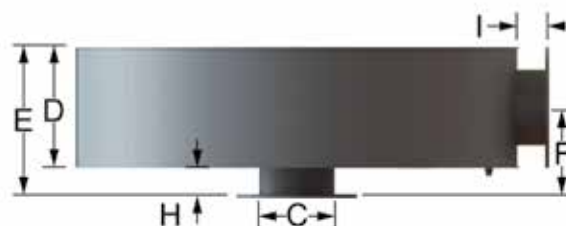
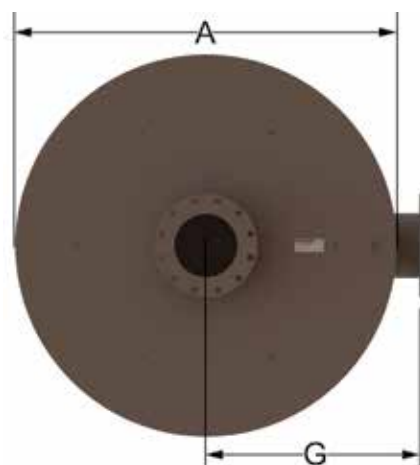
Typical Applications: Internal combustion engines, process skids, genset enclosures, as well as marine engines.

FEATURES

- Heavy duty, welded construction
- Low surface temperature design
- ANSI drilled 125/150 lb. flanges on inlet and outlet
- High-temperature, prime coated black finish
- 2" thick internal insulation within double wall construction
- Lift lugs

OPTIONS / ACCESSORIES

- Stainless steel construction: 304 or 316
- Custom inlet/outlet size, location and multiple orientations available
- Support brackets
- Special paints and finishes available
- 1" internal insulation available
- Complete range of exhaust accessories



HD52									
Part No.*	Size / ØC	ØA	D	E	F	G	H	I	Est Wt
HD52-4	4	40	12	16	10	24	4	4	259
HD52-5	5	49	14	18	11	28.5	4	4	413
HD52-6	6	58	15	19	11.5	33	4	4	653
HD52-8	8	68	17	21	12.5	38	4	4	906
HD52-10	10	78	20	24	14	43	4	4	1373
HD52-12	12	80	23	27	15.5	44	4	4	1544
HD52-14	14	86	27	32	18.5	48	5	5	1961
HD52-16	16	100	30	33	20	55	5	5	2598
HD52-18	18	112	33	38	21.5	61	5	5	3359
HD52-20	20	120	35	39	22.5	65	5	5	3864

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- A minimum 3" gap is recommended between the silencer and enclosure roof.
- Low Profile Orientations Available: Side In-End Out, Side In-Side Out, End In-End Out or Dual in options.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



RESIDENTIAL SPARK ARRESTING LOW PROFILE CHAMBER

19 to 25 dBA Noise Reduction

HDSA22 OVERVIEW

The HDSA22 is engineered to provide a spark arresting residential grade attenuation while minimizing space usage fire hazards exist. Centrifugal force separates solids from the exhaust gas stream in an easily accessible cleanout. It is an excellent choice for packaged power and process skids where space is a premium. Dual inlets and other custom designs can be easily incorporated. Suitable for use where background noise is extremely low, such as residential or industrial locations away from busy streets.

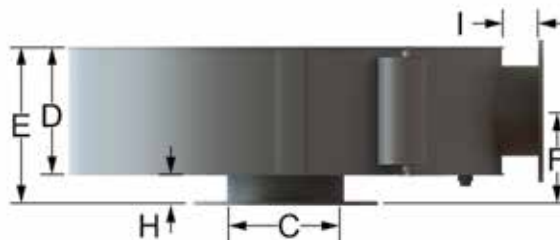
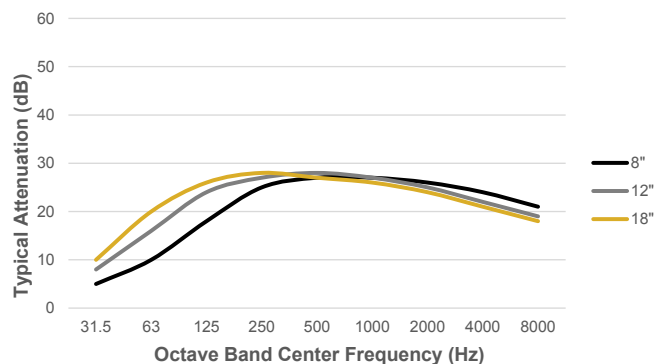
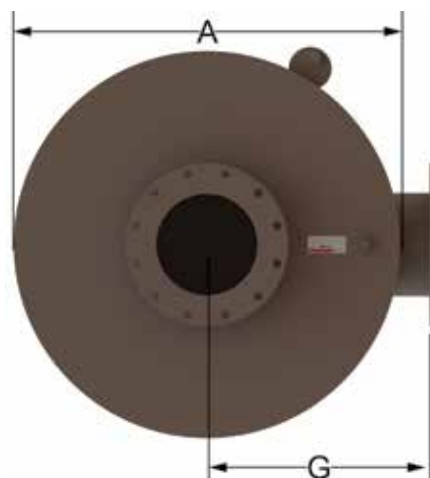
Typical Applications: Internal combustion engines, process skids, genset enclosures, as well as marine engines.

FEATURES

- Heavy duty, welded construction
- Unpacked/Non-insulated design
- Low surface temperature design
- ANSI drilled 125/150 lb. flanges on inlet and outlet
- High-temperature, prime coated black finish
- Lift lugs

OPTIONS / ACCESSORIES

- Low surface temperature design
- Stainless steel construction: 304 or 316
- Custom inlet/outlet size, location and multiple orientations available
- Support brackets
- Special paints and finishes available
- 1" to 2" internal insulation available
- Complete range of exhaust accessories



HDSA22

Part No.*	Size / ØC	ØA	D	E	F	G	H	I	Est Wt
HDSA22-4	4	22	7	11	7.5	15	4	4	105
HDSA22-5	5	24	8	12	8	16	4	4	121
HDSA22-6	6	28	8.5	12.5	8.25	18	4	4	149
HDSA22-8	8	33	12	16	10	20.5	4	4	239
HDSA22-10	10	41	13	17	10.5	24.5	4	4	335
HDSA22-12	12	45	17	21	12.5	26.5	4	4	475
HDSA22-14	14	52	18	22	13	30	4	4	550
HDSA22-16	16	59	21	23	14.5	33.5	4	4	728
HDSA22-18	18	65	23	27	15.5	36.5	4	4	838

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- A minimum 3" gap is recommended between the silencer and enclosure roof.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



CRITICAL SPARK ARRESTING LOW PROFILE CHAMBER

22 to 28 dBA Noise Reduction

HDSA32 OVERVIEW

The HDSA32 is engineered to provide a spark arresting critical grade attenuation while minimizing space usage where fire hazards exist. Centrifugal force separates solids from the exhaust gas stream in an easily accessible cleanout. It is an excellent choice for packaged power and process skids where space is a premium. Dual inlets and other custom designs can be easily incorporated. Design not only reduces surface temperature, but also radiated noise.

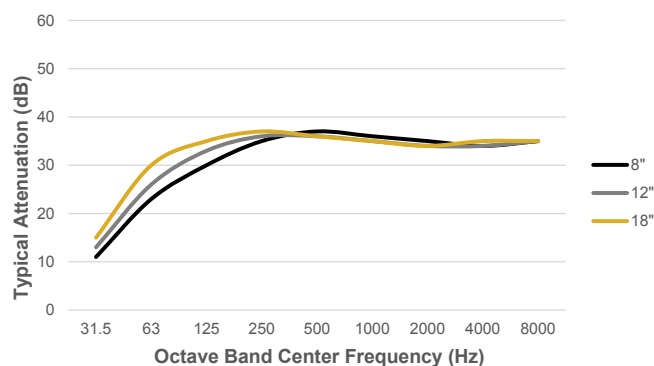
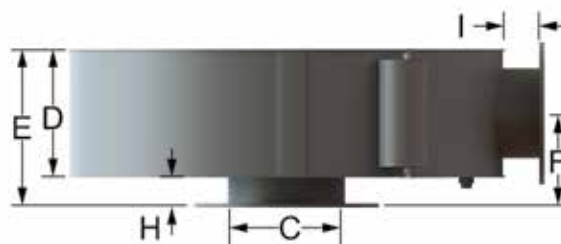
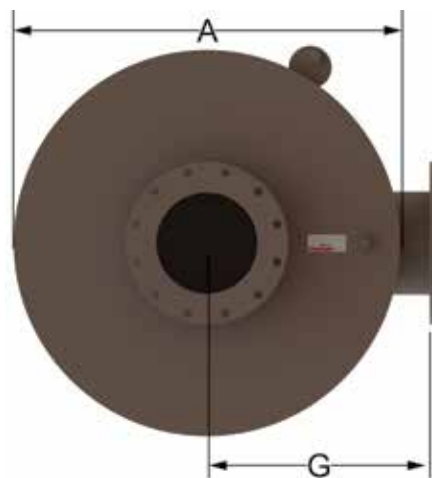
Typical Applications: Internal combustion engines, process skids, genset enclosures, as well as marine engines.

FEATURES

- Heavy duty, welded construction
- Low surface temperature design
- ANSI drilled 125/150 lb. flanges on inlet and outlet
- High-temperature, prime coated black finish
- 2" thick internal insulation within double wall construction
- Lift lugs

OPTIONS / ACCESSORIES

- Stainless steel construction: 304 or 316
- Custom inlet/outlet size, location and multiple orientations available
- Support brackets
- Special paints and finishes available
- 1" internal insulation available
- Complete range of exhaust accessories



HDSA32

Part No.*	Size / ØC	ØA	D	E	F	G	H	I	Est Wt
HDSA32-4	4	28	9	13	8.5	18	4	4	130
HDSA32-5	5	29	11	15	9.5	18.5	4	4	150
HDSA32-6	6	33	12	16	10	20.5	4	4	192
HDSA32-8	8	45	14	18	11	26.5	4	4	341
HDSA32-10	10	52	16	20	12	30	4	4	561
HDSA32-12	12	62	18	22	13	35	4	4	816
HDSA32-14	14	64	23	28	16.5	37	5	5	950
HDSA32-16	16	74	25	30	17.5	42	5	5	1388
HDSA32-18	18	84	27	32	18.5	47	5	5	1856
HDSA32-20	20	92	28	33	19	51	5	5	2186

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- A minimum 3" gap is recommended between the silencer and enclosure roof.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



SUPER CRITICAL SPARK ARRESTING LOW PROFILE CHAMBER

30 to 37 dBA Noise Reduction

HDSA42 OVERVIEW

The HDSA42 is engineered to provide a spark arresting super critical grade attenuation while minimizing space usage fire hazards exist. Centrifugal force separates solids from the exhaust gas stream in an easily accessible cleanout. It is an excellent choice for packaged power and process skids where space is a premium. Dual inlets and other custom designs can be easily incorporated. Design not only reduces surface temperature, but also radiated noise. Suitable for use where background noise is extremely low, such as residential or hospital locations away from busy streets.

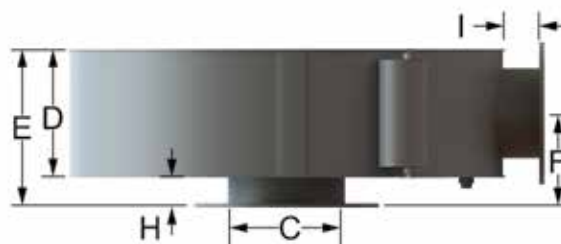
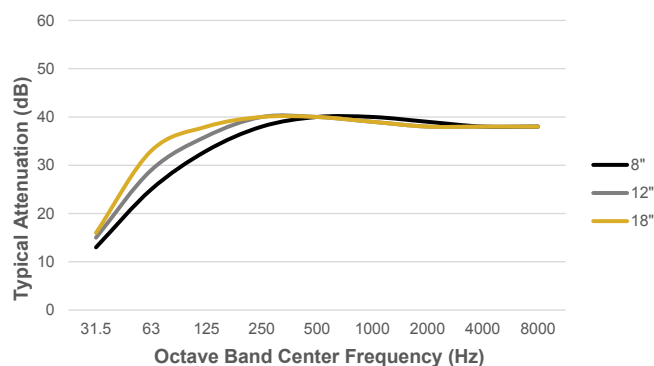
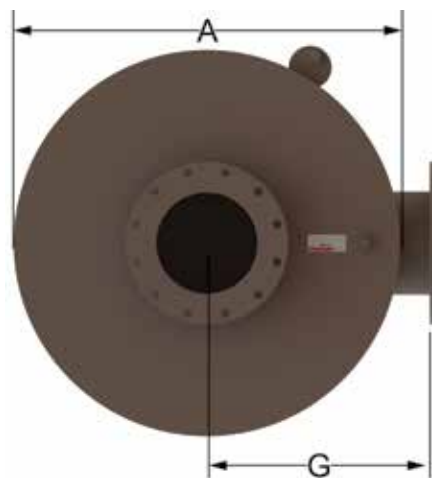
Typical Applications: Internal combustion engines, process skids, genset enclosures, as well as marine engines.

FEATURES

- Heavy duty, welded construction
- Low surface temperature design
- ANSI drilled 125/150 lb. flanges on inlet and outlet
- High-temperature, prime coated black finish
- 2" thick internal insulation within double wall construction
- Lift lugs

OPTIONS / ACCESSORIES

- Stainless steel construction: 304 or 316
- Custom inlet/outlet size, location and multiple orientations available
- Support brackets
- Special paints and finishes available
- 1" internal insulation available
- Complete range of exhaust accessories



HDSA42

Part No.*	Size / ØC	ØA	D	E	F	G	H	I	Est Wt
HDSA42-4	4	32	10	14	9	20	4	4	165
HDSA42-5	5	32	11	15	9.5	20	4	4	174
HDSA42-6	6	38	12	16	10	23	4	4	238
HDSA42-8	8	52	14	18	11	30	4	4	518
HDSA42-10	10	59	16	20	12	33.5	4	4	701
HDSA42-12	12	70	18	22	13	39	4	4	984
HDSA42-14	14	70	24	29	17	40	5	5	1104
HDSA42-16	16	75	28	33	19	42.5	5	5	1518
HDSA42-18	18	86	30	35	20	48	5	5	2006
HDSA42-20	20	94	32	37	21	52	5	5	2375

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- A minimum 3" gap is recommended between the silencer and enclosure roof.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



CRITICAL THIN LINE SILENCER

35 to 42 dBA Noise Reduction

HR32 OVERVIEW

The HR32 is engineered to provide a critical grade attenuation while minimizing space usage. It is designed specifically for enclosures and marine applications where silencer height is critical. Dual inlets and other custom designs can be easily incorporated. Design not only reduces surface temperature, but also radiated noise.

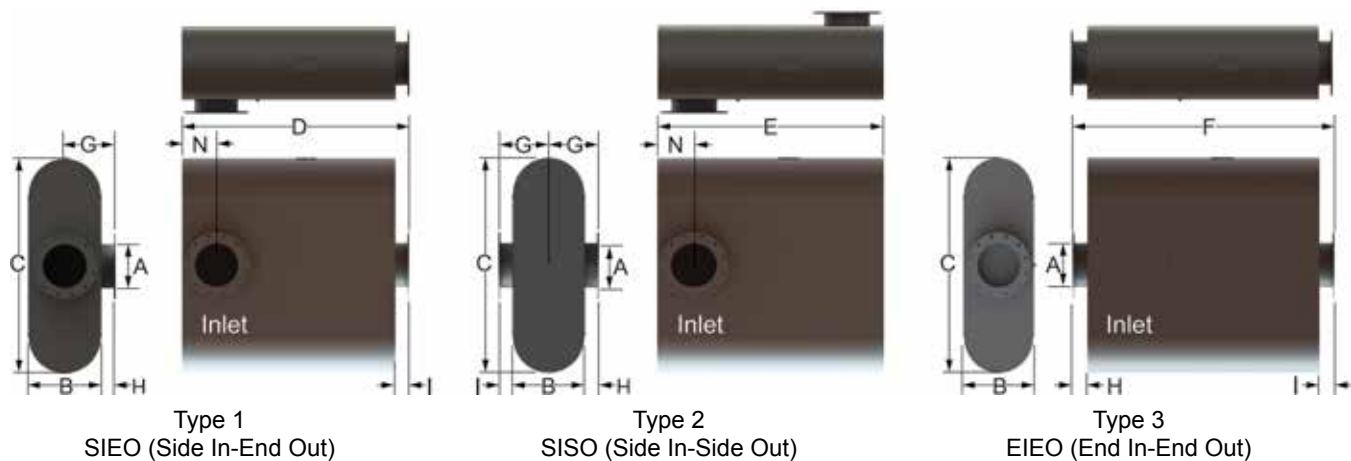
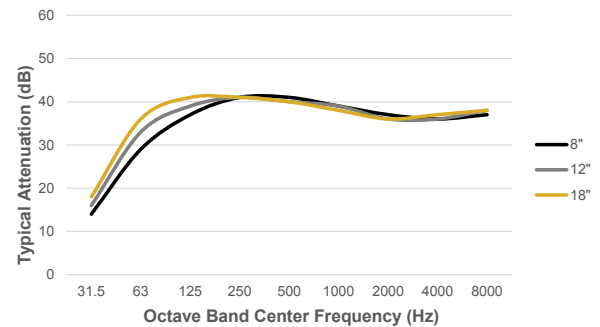
Typical Applications: Enclosures, as well as marine engines.

FEATURES

- Low surface temperature design
- Heavy duty, welded construction
- ANSI drilled 125/150 lb. flanges on inlet and outlet
- High-temperature, prime coated black finish
- 2" thick internal insulation within double wall construction

OPTIONS / ACCESSORIES

- Stainless steel construction: 304 or 316
- Custom inlet/outlet size, location and multiple orientations available
- Support brackets
- Special paints and finishes available
- 1" internal insulation available
- Lift lugs
- Complete range of exhaust accessories



HR32											Est Wt
Part No.*	Size / ØA	B	C	D	E	F	N Min	N Max	G	H and I	w/ brackets
HR32-4	4	11	28	32	28	36	6	15	9.5	4	207
HR32-5	5	12	29	33	29	37	6.5	15	10	4	238
HR32-6	6	13	33	37	33	41	7	17	10.5	4	299
HR32-8	8	15	45	50	46	54	8	24	11.5	4	584
HR32-10	10	18	52	56	52	60	9	27	13	4	772
HR32-12	12	21	62	66	62	70	10	33	14.5	4	1279
HR32-14	14	23	65	70	66	74	11	34	15.5	4	1449
HR32-16	16	25	74	79	75	83	12	39	16.5	4	1841
HR32-18	18	27	84	90	86	94	14	46	17.5	4	2405
HR32-20	20	30	88	94	90	98	15	47	19	4	2702

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- A minimum 3" gap is recommended between the silencer and enclosure roof.
- Thin Line Orientations Available: Side In-End Out, Side In-Side Out, End In-End Out or Dual in options.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



HOSPITAL THIN LINE SILENCER

39 to 46 dBA Noise Reduction

HR42 OVERVIEW

The HR42 is engineered to provide a hospital grade attenuation while minimizing space usage. It is designed specifically for enclosures and marine applications where silencer height is critical. Dual inlets and other custom designs can be easily incorporated. Design not only reduces surface temperature, but also radiated noise.

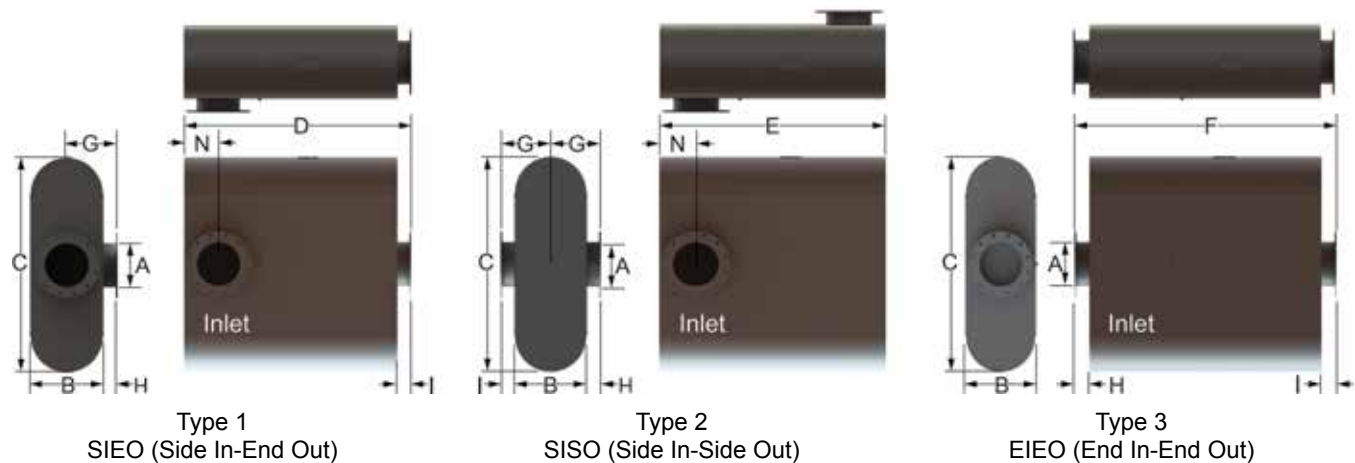
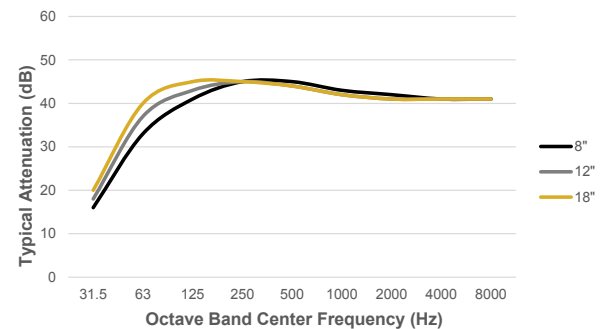
Typical Applications: Enclosures, as well as marine engines.

FEATURES

- Low surface temperature design
- Heavy duty, welded construction
- ANSI drilled 125/150 lb. flanges on inlet and outlet
- High-temperature, prime coated black finish
- 2" thick internal insulation within double wall construction

OPTIONS / ACCESSORIES

- Stainless steel construction: 304 or 316
- Custom inlet/outlet size, location and multiple orientations available
- Support brackets
- Special paints and finishes available
- 1" internal insulation available
- Lift lugs
- Complete range of exhaust accessories



HR42											Est Wt
Part No.*	Size / ØA	B	C	D	E	F	N Min	N Max	G	H and I	w/ brackets
HR42-4	4	11	34	38	34	42	6	11	9.5	4	283
HR42-5	5	12	34	38	34	42	6.5	18	10	4	299
HR42-6	6	13	38	42	38	46	7	20	10.5	4	374
HR42-8	8	15	52	56	52	60	8	28	11.5	4	729
HR42-10	10	18	59	63	59	67	9	31	13	4	950
HR42-12	12	21	70	74	70	78	10	38	14.5	4	1568
HR42-14	14	24	70	74	70	78	11	37	16	4	1674
HR42-16	16	28	75	80	76	84	12	40	18	4	2044
HR42-18	18	30	86	92	88	96	14	47	19	4	2623
HR42-20	20	34	92	98	94	102	15	50	21	4	3054

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- A minimum 3" gap is recommended between the silencer and enclosure roof.
- Thin Line Orientations Available: Side In-End Out, Side In-Side Out, End In-End Out or Dual in options.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



EXTREME THIN LINE SILENCER

45 to 52 dBA Noise Reduction

HR62 OVERVIEW

The HR62 is engineered to provide an extreme grade attenuation while minimizing space usage. It is designed specifically for enclosures and marine applications where silencer height is critical. Dual inlets and other custom designs can be easily incorporated. Design not only reduces surface temperature, but also radiated noise.

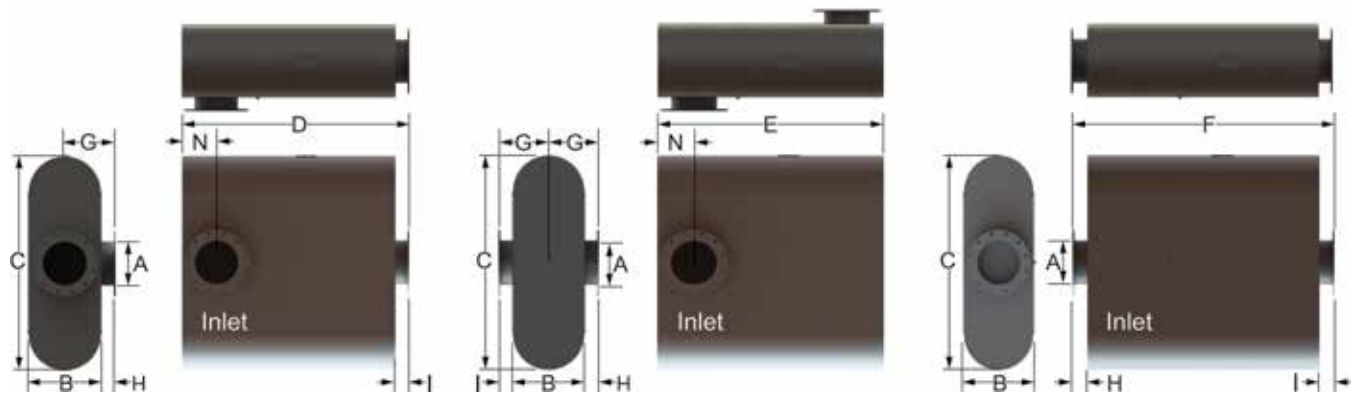
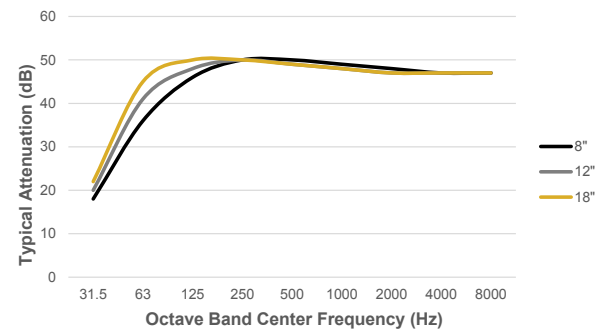
Typical Applications: Enclosures, as well as marine engines.

FEATURES

- Low surface temperature design
- Heavy duty, welded construction
- ANSI drilled 125/150 lb. flanges on inlet and outlet
- High-temperature, prime coated black finish
- 2" thick internal insulation within double wall construction
- Lift lugs

OPTIONS / ACCESSORIES

- Stainless steel construction: 304 or 316
- Custom inlet/outlet size, location and multiple orientations available
- Support brackets
- Special paints and finishes available
- 1" internal insulation available
- Lift lugs
- Complete range of exhaust accessories



Type 1
SIEO (Side In-End Out)

Type 2
SISO (Side In-Side Out)

Type 3
EIEO (End In-End Out)

HR62											Est Wt
Part No.*	Size / ØA	B	C	D	E	F	N Min	N Max	G	H and I	w/ brackets
HR62-4	4	12	38	66	62	70	8	18	10	4	512
HR62-5	5	13	40	66	62	70	9	18	10.5	4	554
HR62-6	6	14	42	78	74	82	9	22	11	4	703
HR62-8	8	16	62	102	98	106	10	31	12	4	1473
HR62-10	10	18	70	108	104	112	11	32	13	4	1795
HR62-12	12	22	74	120	116	124	12	36	15	4	2598
HR62-14	14	28	78	120	116	124	13	35	18	4	2971
HR62-16	16	32	82	126	122	130	14	36	20	4	3411
HR62-18	18	34	92	150	146	154	15	45	21	4	4400
HR62-20	20	36	96	150	146	154	16	44	22	4	4685

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- A minimum 3" gap is recommended between the silencer and enclosure roof.
- Thin Line Orientations Available: Side In-End Out, Side In-Side Out, End In-End Out or Dual in options.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



MARINE ENGINE / WET EXHAUST SILENCERS

15 to 18 dBA Noise Reduction

HP11 OVERVIEW

Constructed of 316L stainless steel, the HP11 offers good noise attenuation with low pressure drop in marine exhaust systems where water is injected upstream of the silencer. Mixed exhaust flow temperature not to exceed 200°F at silencer inlet.

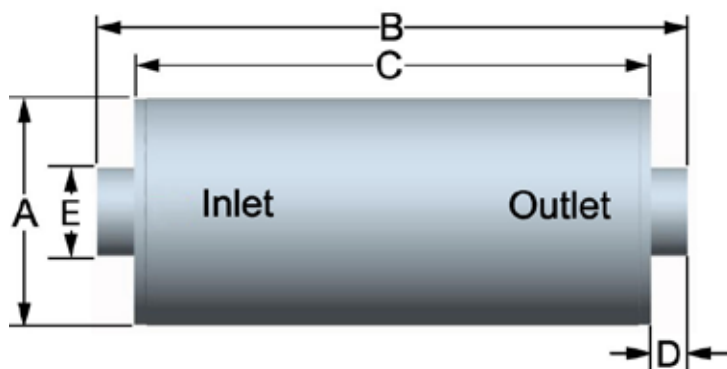
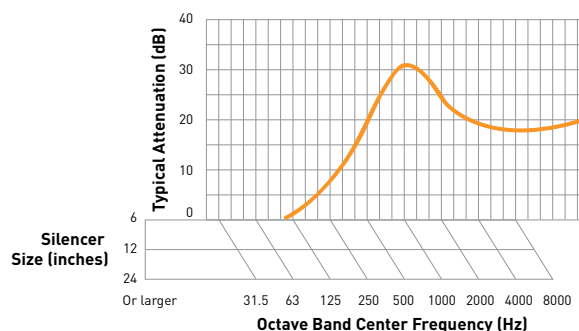
Typical Applications: Internal combustion engines using wet type exhaust

FEATURES

- Advanced acoustical design
- Reduces noxious fumes and odors
- Thick wall construction for high transmission loss
- All welded construction and long service life
- Standard pipe size O.D. stubs
- Easy installation in any position

OPTIONS / ACCESSORIES

- Monel construction
- Flanged connections
- Horizontal or vertical support arrangements
- Complete range of exhaust accessories



HP11						
Part No.*	Size / ØE	ØA	B	C	D	Est Wt
HP11-4	4	10.75	24	18	3	43
HP11-4.5	4.5	10.75	24	18	3	43
HP11-5	5	12.75	30	24	3	63
HP11-6	6	12.75	30	24	3	65
HP11-8	8	14.5	48	36	6	123
HP11-10	10	16.75	60	48	6	191
HP11-12	12	18.75	72	60	6	225



- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.

MARINE ENGINE / WET EXHAUST SILENCERS

20 to 25 dBA Noise Reduction

HP31 OVERVIEW

Constructed of 316L stainless steel, the HP31 offers very good noise attenuation with medium pressure drop in marine exhaust systems where water is injected upstream of the silencer. Mixed exhaust flow temperature not to exceed 200 °F at silencer inlet.

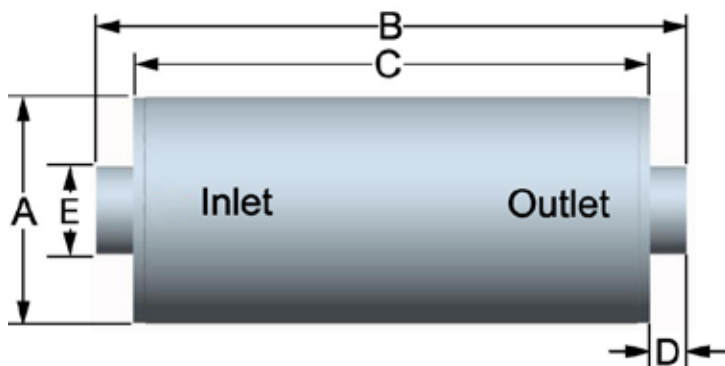
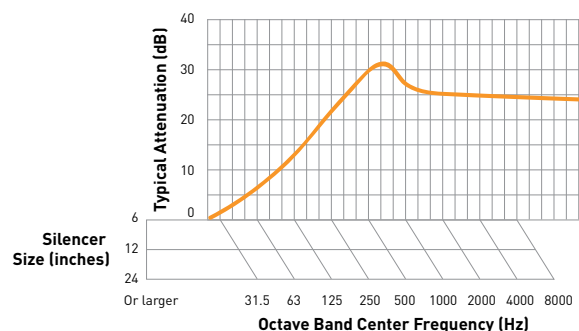
Typical Applications: Internal combustion engines using wet type exhaust

OPTIONS / ACCESSORIES

- Monel construction
- Flanged connections
- Horizontal or vertical support arrangements
- Complete range of exhaust accessories

FEATURES

- Advanced acoustical design
- Reduces noxious fumes and odors
- Thick wall construction for high transmission loss
- All welded construction and long service life
- Standard pipe size O.D. stubs
- Easy installation in any position



HP31						
Part No.*	Size / ØE	ØA	B	C	D	Est Wt
HP31-4	4	8.75	30	24	3	39
HP31-4.5	4.5	10.75	36	30	3	61
HP31-5	5	10.75	36	30	3	61
HP31-6	6	12.75	42	36	3	94
HP31-8	8	16.75	60	48	6	143
HP31-10	10	20.25	70	58	6	230
HP31-12	12	24.25	82	70	6	327

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



MARINE ENGINE / WET EXHAUST SILENCERS

30 to 35 dBA Noise Reduction

HP41 OVERVIEW

Constructed of 316L stainless steel, the HP41 offers very high noise attenuation in marine exhaust systems where water is injected upstream of the silencer. Mixed exhaust flow temperature not to exceed 200 °F at silencer inlet.

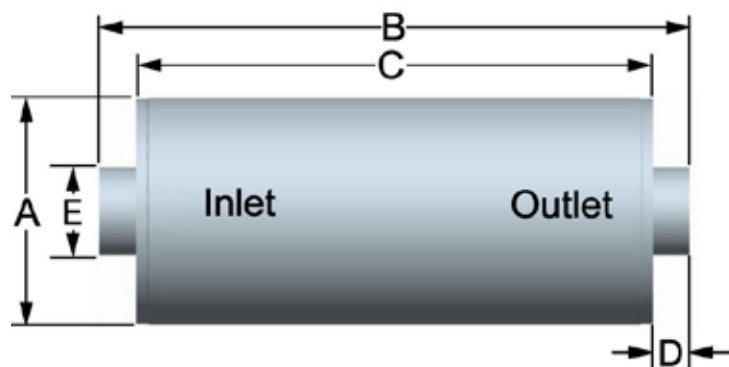
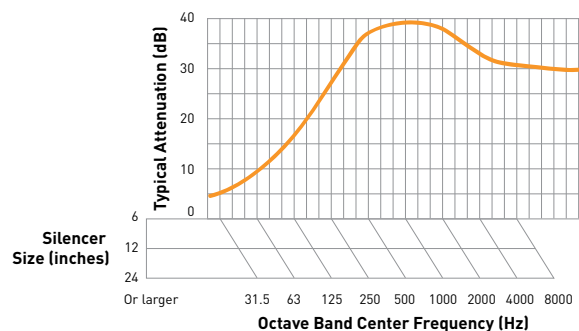
Typical Applications: Internal combustion engines using wet type exhaust

FEATURES

- Advanced acoustical design
- Reduces noxious fumes and odors
- Thick wall construction for high transmission loss
- All welded construction and long service life
- Standard pipe size O.D. stubs
- Easy installation in any position

OPTIONS / ACCESSORIES

- Monel construction
- Flanged connections
- Horizontal or vertical support arrangements
- Complete range of exhaust accessories



HP41						
Part No.*	Size / ØE	ØA	B	C	D	Est Wt
HP41-4	4	10.75	54	48	3	83
HP41-4.5	4.5	12.75	54	48	3	103
HP41-5	5	12.75	54	48	3	103
HP41-6	6	14.75	54	48	3	118
HP41-8	8	18.75	60	48	6	167
HP41-10	10	22.25	70	58	6	235
HP41-12	12	26.25	82	70	6	334



- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.

STRAIGHT THROUGH ACOUSTICALLY PACKED BLOWER

15 to 30 dBA Noise Reduction

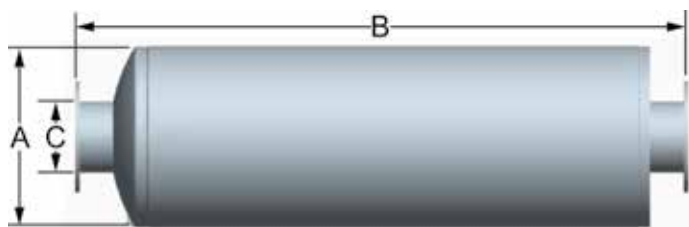
HB11 OVERVIEW

Use for a high degree of high frequency noise attenuation on blower intakes or discharges. This is ideal for residential areas where background noise is relatively low.

Typical applications: Rotary positive blower intake and discharge, vacuum pump intake and discharge, and centrifugal blower intake and discharge

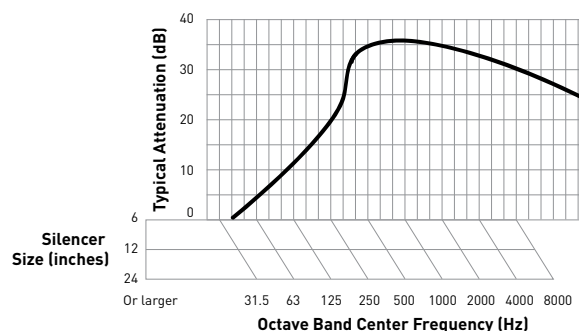
FEATURES

- Advanced acoustical design
- High quality sound absorbing material
- Extra heavy wall, all welded construction
- Prime coated exterior finish
- Sizes 1" through 3.5" have MNPT connections



OPTIONS / ACCESSORIES

- Flexible connectors
- Companion flanges
- Horizontal or vertical support arrangements
- Special paint
- Stainless steel construction
- Complete range of exhaust accessories



HB11				
Part No.*	Size / ØC	ØA	B	Est Wt
HB11-1	1	4.625	16	10
HB11-1.5	1.5	4.625	20	15
HB11-2	2	5.75	24	20
HB11-2.5	2.5	5.75	26	25
HB11-3	3	7	30	40
HB11-3.5	3.5	7	34	45
HB11-4	4	10.25	38	90
HB11-5	5	12	42	120
HB11-6	6	12	48	145
HB11-8	8	14	54	200
HB11-10	10	16	67	315
HB11-12	12	18	79	420
HB11-14	14	20	91	670
HB11-16	16	22	103	840
HB11-18	18	30	71	980
HB11-20	20	36	83	1370
HB11-22	22	36	89	1505
HB11-24	24	40	98	1920
HB11-26	26	45	106	2325
HB11-28	28	45	111	2495
HB11-30	30	50	121	2995

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



CHAMBER TYPE BLOWER SILENCER

15 to 30 dBA Noise Reduction

HB21 OVERVIEW

An efficient economical design, the HB21 is useful on blower intakes or discharges. Use an HB21 where some background noise is always present and high degrees of silencing is not required.

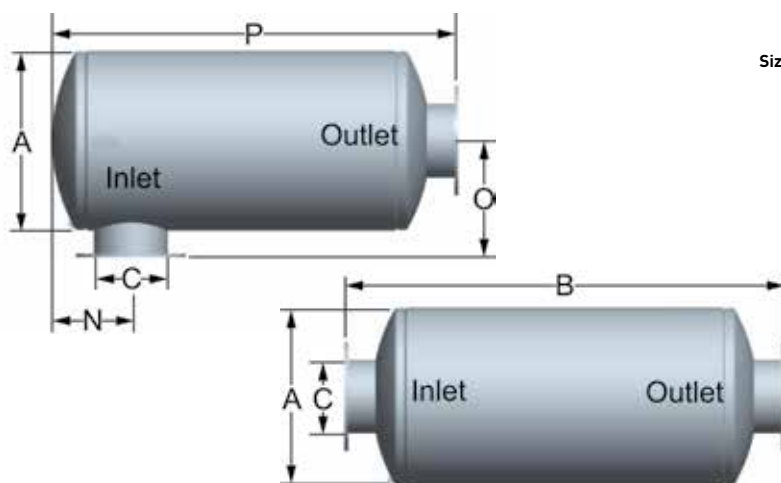
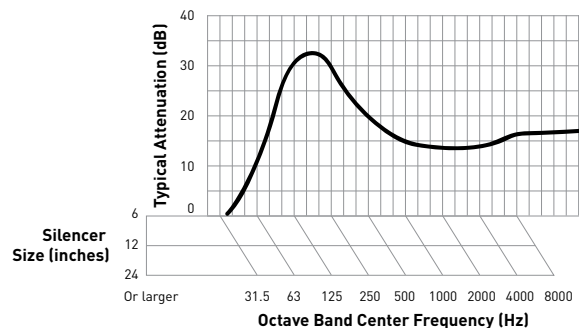
Typical applications: Rotary positive blower intake and discharge (10" size and below)

FEATURES

- Advanced acoustical design
- Prime coated exterior finish

OPTIONS / ACCESSORIES

- Stainless steel or monel construction
- Flanged connections
- Standard pipe size necks
- Horizontal or vertical support arrangements
- Special paint
- Complete range of exhaust accessories



HB21								
Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	Est Wt
HB21-4	4	14	48	5.5	22	10	45	110
HB21-5	5	16	55	6.5	25	11	52.25	120
HB21-6	6	18	63	7	29.5	12	60.25	170
HB21-8	8	22	76	8.5	36.5	14	73.5	285
HB21-10	10	26	91	10.5	43	16.5	88	460
HB21-12	12	30	109	12	53	18.5	106.25	745
HB21-14	14	36	102	14	48	21.5	99.25	965
HB21-16	16	40	119	17	56	23.5	116.5	1340
HB21-18	18	45	127	19	60	26.5	124	1850
HB21-20	20	50	144	21	69	29	141.25	2175
HB21-22	22	54	161	22	78	31	158.5	2650
HB21-24	24	60	165	24	79	34	162.25	3400
HB21-26	26	64	183	26	89	36	180.5	3850
HB21-28	28	68	200	27	98	38	197.75	4840
HB21-30	30	72	216	29	107	40	213.75	5150

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



COMBINATION ACOUSTICALLY PACKED CHAMBER BLOWER

25 to 30 dBA Noise Reduction

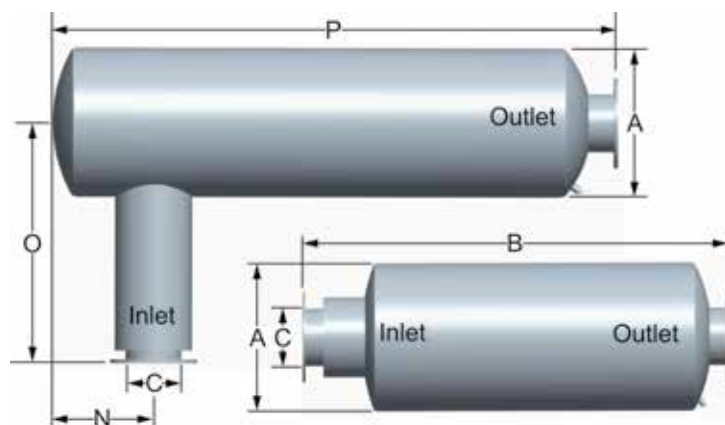
HB31 OVERVIEW

The HB31 provides the highest degree of overall noise attenuation on blower intakes or discharges. Use an HB31 where background noise is extremely low and the best degree of silencing is required.

Typical applications: Rotary positive blower intake and discharge

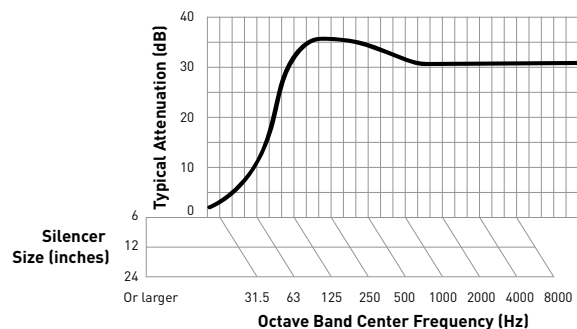
FEATURES

- Advanced acoustical design
- High quality sound absorbing material
- Packed inlet
- Prime coated exterior finish



OPTIONS / ACCESSORIES

- Stainless steel or monel construction
- Flanged connections
- Standard pipe size necks
- Horizontal or vertical support arrangements
- Special paint
- Complete range of exhaust accessories



HB31								
Part No.*	Size / ØC	ØA	B	N Min	N Max	O	P	Est Wt
HB31-4	4	14	52	8.5	19	23	45	150
HB31-5	5	16	60	10	21.5	26	52.25	195
HB31-6	6	18	69	10	26.5	30	60.25	250
HB31-8	8	22	84	11	33.5	36	73.5	380
HB31-10	10	26	101	13.5	40	43	88	620
HB31-12	12	30	121	15	50	51	106.25	1030
HB31-14	14	36	115	18	44	52	99.25	1230
HB31-16	16	40	135	20	53	59	116.5	1815
HB31-18	18	45	140	25	54	58	124	2750
HB31-20	20	50	159	26	64	59	141.25	3210
HB31-22	22	54	177	29	71	60	154.25	3895
HB31-24	24	60	184	30	73	60	162.25	4330
HB31-26	26	64	204	31	84	60	180.5	5005
HB31-28	28	68	223	33	92	62	197.75	6625
HB31-30	30	72	241	34	102	62	213.75	7315
HB31-32	32	76	250	36.5	102.5	64	220.75	8415
HB31-34	34	82	252	37.5	102.5	64	220.5	8995
HB31-36	36	86	254	37.5	102.5	65	221	9485

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



STRAIGHT THROUGH ABSORPTIVE DESIGN

15 to 20 dBA Noise Reduction

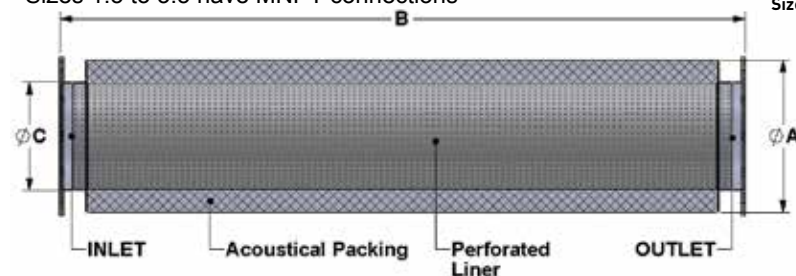
FP-FPE OVERVIEW

Straight through design without a center panel offers good attenuation of high frequency noise with low pressure drop. Applications include small atmospheric vent applications. It can also serve as an add-on to boost overall attenuation when installed in series with an M-line chamber type silencer. FP is for intake service and the FPE for exhaust service.

Typical Applications: Internal combustion engine intakes and exhaust, compressor intakes or fan intakes and discharges

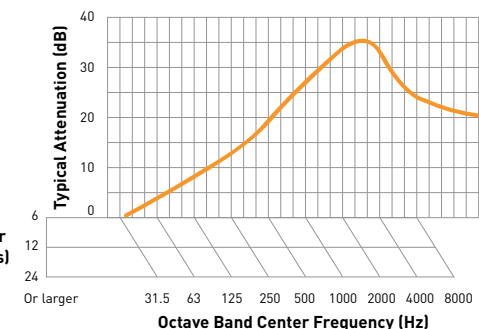
FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- Prime coated exterior finish
- Sizes 1.5 to 3.5 have MNPT connections



OPTIONS / ACCESSORIES

- Horizontal or vertical support arrangements
- Special paint
- Stainless steel construction
- Complete range of exhaust accessories



FP - FPE						
Part No.*	ØA FP	Part No.*	ØA FPE	Size / ØC	B	Est Wt
FP-1.5	4.75	FPE-1.5	4.75	1.5	20	8
FP-2	5	FPE-2	5	2	24	12
FP-2.5	6	FPE-2.5	6	2.5	26	14
FP-3	6.5	FPE-3	6.5	3	30	20
FP-3.5	7	FPE-3.5	7	3.5	34	28
FP-4	10	FPE-4	11	4	38	55
FP-5	11.125	FPE-5	12	5	42	63
FP-6	12.125	FPE-6	13	6	48	80
FP-8	14.125	FPE-8	15	8	54	120
FP-10	16.125	FPE-10	17	10	67	180
FP-12	18.125	FPE-12	19	12	79	290
FP-14	20	FPE-14	20	14	91	330
FP-16	22	FPE-16	22	16	103	440
FP-18	24	FPE-18	24	18	116	570
FP-20	26	FPE-20	26	20	128	700
FP-22	28	FPE-22	28	22	140	820
FP-24	30	FPE-24	30	24	152	1100
FP-26	32	FPE-26	32	26	164	1370
FP-28	34	FPE-28	34	28	176	1560
FP-30	36	FPE-30	36	30	188	1770

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



INTERNAL CENTER PANEL ABSORPTIVE DESIGN

20 to 25 dBA Noise Reduction

FPC-FPCE OVERVIEW

Use for a medium to high degree of high frequency noise attenuation. FPC is for intake service and the FPCE for exhaust service.

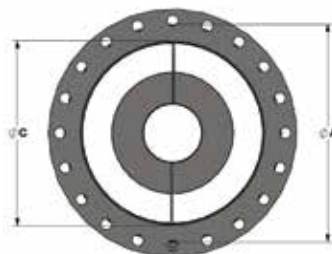
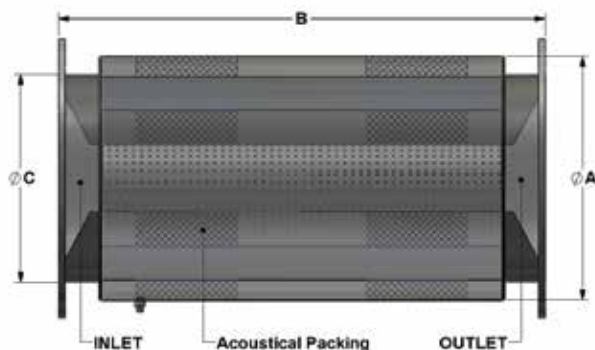
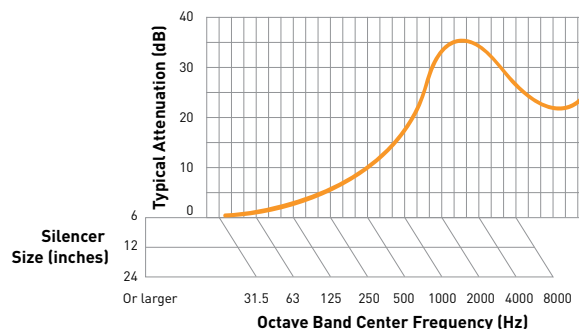
Typical Applications: Internal combustion engine intakes and exhaust, compressor intakes or fan intakes and discharges

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- Prime coated exterior finish

OPTIONS / ACCESSORIES

- Horizontal or vertical support arrangements
- Special paint
- Stainless steel construction
- Complete range of exhaust accessories



FPC - FPCE

Part No.*	Part No.*	Size / ØC	ØA	B	Est Wt
FPC-14	FPCE-14	14	18	35	200
FPC-16	FPCE-16	16	20	39	240
FPC-18	FPCE-18	18	22	44	300
FPC-20	FPCE-20	20	24	48	360
FPC-22	FPCE-22	22	26	52	430
FPC-24	FPCE-24	24	28	56	590
FPC-26	FPCE-26	26	30.375	60	700
FPC-28	FPCE-28	28	32.5	64	800
FPC-30	FPCE-30	30	35.375	68	900
FPC-32	FPCE-32	32	37	72	1200
FPC-34	FPCE-34	34	39.5	76	1330
FPC-36	FPCE-36	36	42	80	1490

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



FULL FLOW INTERNAL CENTER PANEL ABSORPTIVE DESIGN 15 to 30 dBA Noise Reduction

FPS-FPSE OVERVIEW

Designed for a high degree of high frequency noise attenuation. FPS is for intake service and the FPSE for exhaust service.

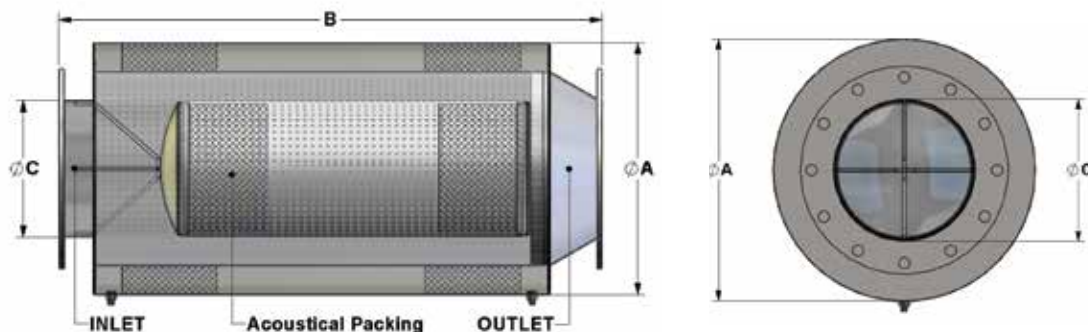
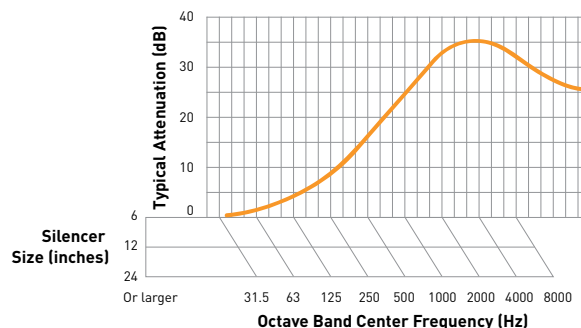
Typical Applications: Internal combustion engine intakes and exhaust, compressor intakes or fan intakes and discharges

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- Easily installed in any position
- Prime coated exterior finish

OPTIONS / ACCESSORIES

- Horizontal or vertical support arrangements
- Special paint
- Stainless steel construction
- Complete range of exhaust accessories



FPS-FPSE					
Part No.*	Part No.*	Size / ØC	ØA	B	Est Wt
FPS-6	FPSE-6	6	14.625	27	75
FPS-8	FPSE-8	8	18	35	130
FPS-10	FPSE-10	10	20.75	44	190
FPS-12	FPSE-12	12	23.375	51	270
FPS-14	FPSE-14	14	26.375	57	370
FPS-16	FPSE-16	16	29.125	66	490
FPS-18	FPSE-18	18	32.125	71	565
FPS-20	FPSE-20	20	34.875	83	820
FPS-22	FPSE-22	22	37.75	89	1000
FPS-24	FPSE-24	24	40.5	98	1280
FPS-26	FPSE-26	26	43.375	106	1530
FPS-28	FPSE-28	28	46.25	111	1700
FPS-30	FPSE-30	30	49	121	1900

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



RESIDENTIAL GRADE ANNULAR FLOW SILENCER

AFS2-AFSE2 OVERVIEW

Designed for a variety of intake (AFS2) and exhaust (AFSE2) applications ranging from 500-5,000 hp, or mass flow of 2.5 thru 65 lbs/sec. Approximate capacities are based on average gas velocity through silencer of approximately 10,000 ft/min, and will vary depending on pressure drop criteria. Special bullet designed internals consist of acoustic fiberglass packing adjacent to concentric perforated cylinders, creating an annular flow design. Air intake unit internals are made of stainless steel, tig welded, cleaned and sealed for shipping.

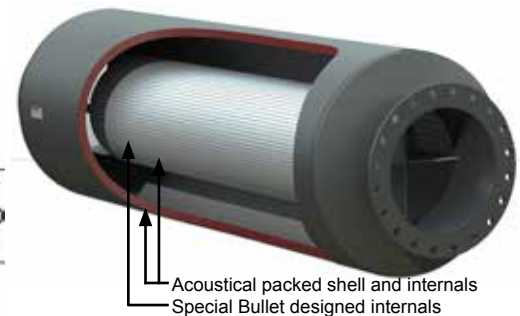
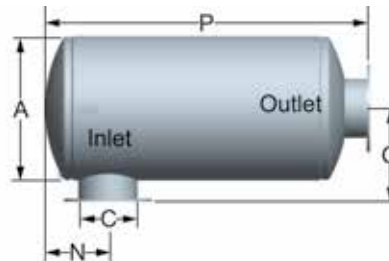
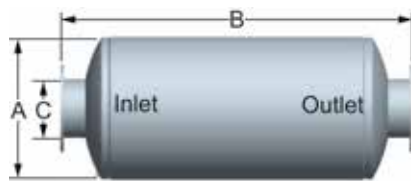
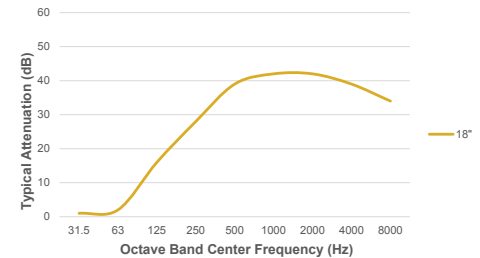
Typical Applications: Gas turbine, Internal combustion engine intakes and exhaust, compressor intakes or fan intakes and discharges.

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- High heat black paint finish
- Connections: ANSI pattern flanged

OPTIONS / ACCESSORIES

- Custom inlet/outlet size, location and multiple orientations available
- Special paints and finishes available
- Stainless steel construction
- Complete range of exhaust accessories



AFS2 - AFSE2

Part No.*	Part No.*	Size / ØC	ØA	B	N	O	P	Est Wt
AFS2-10	AFSE2-10	10	20	56	12	14	70	310
AFS2-12	AFSE2-12	12	24	60	11	16	71	405
AFS2-14	AFSE2-14	14	26	66	13	17	83	520
AFS2-16	AFSE2-16	16	28	80	14	18	96	650
AFS2-18	AFSE2-18	18	36	91	18	22	109	810
AFS2-20	AFSE2-20	20	36	103	20	22	126	965
AFS2-22	AFSE2-22	22	36	110	18	22	126	1200
AFS2-24	AFSE2-24	24	42	115	24	25	136	1340
AFS2-26	AFSE2-26	26	42	129	22	25	153	1625
AFS2-28	AFSE2-28	28	48	141	26	29	174	2075
AFS2-30	AFSE2-30	30	48	144	26	29	174	2550
AFS2-32	AFSE2-32	32	54	150	call	call	call	2900
AFS2-34	AFSE2-34	34	54	156	call	call	call	3500
AFS2-36	AFSE2-36	36	60	164	call	call	call	3650
AFS2-40	AFSE2-40	40	66	176	call	call	call	4400
AFS2-42	AFSE2-42	42	66	204	call	call	call	4700

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



CRITICAL GRADE ANNULAR FLOW SILENCER

AFS3-AFSE3 OVERVIEW

Designed for a variety of intake (AFS3) and exhaust (AFSE3) applications ranging from 500-5,000 hp, or mass flow of 2.5 thru 65 lbs/sec. Approximate capacities are based on average gas velocity through silencer of approximately 10,000 ft/min, and will vary depending on pressure drop criteria. Special bullet designed internals consist of acoustic fiberglass packing adjacent to concentric perforated cylinders, creating an annular flow design. Air intake unit internals are made of stainless steel, tig welded, cleaned and sealed for shipping.

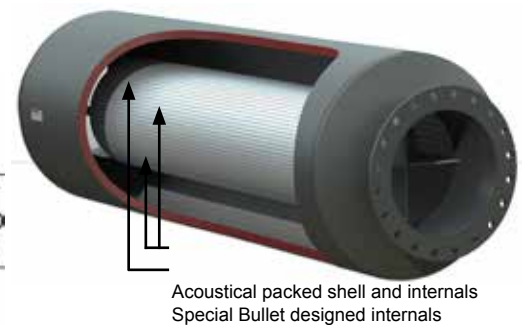
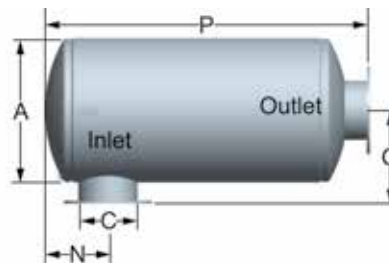
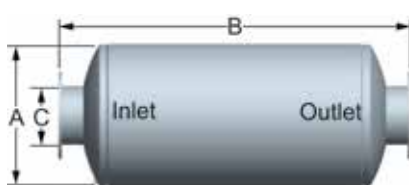
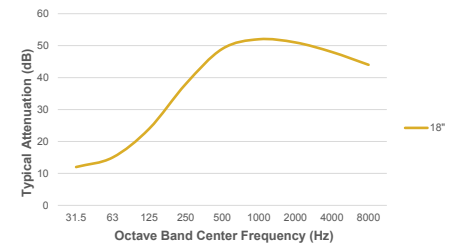
Typical Applications: Gas turbine, Internal combustion engine intakes and exhaust, compressor intakes or fan intakes and discharges.

FEATURES

- Advanced acoustical design
- Heavy duty, all welded construction and long service life
- High heat black paint finish
- Connections: ANSI pattern flanged

OPTIONS / ACCESSORIES

- Custom inlet/outlet size, location and multiple orientations available
- Special paints and finishes available
- Stainless steel construction
- Complete range of exhaust accessories



AFS3 - AFSE3

Part No.*	Part No.*	Size / ØC	ØA	B	N	O	P	Est Wt
AFS3-4	AFSE3-4	4	14	54	6	11	56	105
AFS3-5	AFSE3-5	5	16	56	6	12	62	135
AFS3-6	AFSE3-6	6	16	56	7	12	62	145
AFS3-8	AFSE3-8	8	18	60	8	13	70	200
AFS3-10	AFSE3-10	10	20	68	10	14	77	365
AFS3-12	AFSE3-12	12	24	80	12	16	95	525
AFS3-14	AFSE3-14	14	26	96	14	17	106	665
AFS3-16	AFSE3-16	16	28	104	14	18	115	800
AFS3-18	AFSE3-18	18	36	114	18	22	132	1060
AFS3-20	AFSE3-20	20	36	126	18	22	154	1200
AFS3-22	AFSE3-22	22	36	140	19	23	159	1475
AFS3-24	AFSE3-24	24	42	158	24	24	184	1625
AFS3-26	AFSE3-26	26	42	168	24	25	189	1995
AFS3-28	AFSE3-28	28	48	176	24	29	210	2500
AFS3-30	AFSE3-30	30	48	188	26	29	221	3100
AFS3-32	AFSE3-32	32	54	204	call	call	call	3625
AFS3-34	AFSE3-34	34	54	216	call	call	call	4300
AFS3-36	AFSE3-36	36	60	228	call	call	call	4500
AFS3-40	AFSE3-40	40	66	248	call	call	call	5300
AFS3-42	AFSE3-42	42	66	258	call	call	call	5800

- All dimensions are in inches. All weights are in pounds. Weights are approximate.
- Listed sound data is based on typical performance and should not be considered absolute.
- *See [nomenclature guide](#) for additional information on part number creation.



HOPQUANG Silencers

Standard Terms and Conditions

QUOTATIONS: All quotations are made subject to the following Standard Terms and Conditions, unless otherwise specified within the body of the formal quotation, in which case that section or paragraph only would be superseded. (In the case of a catalytic silencer, all Standard Terms and Conditions apply except that the LIMITED WARRANTY provision is superseded by the provisions contained in the document entitled "LIMITED WARRANTY AS APPLIED TO CATALYTIC SILENCER.") No deviations from or changes to these Terms and Conditions will be honored or recognized without prior negotiation and written agreement between the Seller and Purchaser.

PRICING: All quotations are made for immediate acceptance and are subject to change without notice, unless otherwise noted. Prices quoted are based on the current costs of material and labor and are subject to escalation. Said escalation shall be determined by the cost of material to Seller on the date of shipment of said material from Supplier, and the costs of labor during the fabrication cycle. Prices do not include handling charges, transportation or related costs. Buyer agrees to pay the prices quoted by Seller, and is responsible for freight and handling charges, special packaging beyond the Sellers' standard packaging, taxes and duties. Handling, prepaid freight and special packing costs will be added to the purchase price and invoiced separately.

ORDER ACCEPTANCE, DELIVERY: No order is binding on Seller until accepted and acknowledged in writing by Seller by mail or electronic communication. All delivery dates are approximate and is the date goods leave Sellers dock. The time period for delivery begins when all documentation and release required to fill the order are present, and not before clarification of all details. All delivery promises are subject to prior commitment of shop capacity before the receipt of a firm purchase order by Seller. If shipment is delayed by Purchaser, payment shall become due when Purchaser is notified that equipment is ready for shipment and equipment will henceforth be held at Purchaser's risk and expense.

SHIPMENT, RISK OF LOSS: Buyer's purchase order must specify preferred carrier or goods will ship best way, prepaid and added to the invoice. Shipment is Free Carrier, FCA Sellers facility or origin of shipment, Incoterms 2010, unless otherwise agreed in writing. Risk of loss and title to goods shall pass to the Purchaser as soon as goods are deposited with the carrier for shipment. Buyer assumes both risk of loss and damage to the goods as well as title to the goods on Sellers dock; and Buyer is responsible for all freight, sales and other taxes, customs duties, insurance costs and other expenses relating to the shipment of goods. Buyer is responsible for all costs, reporting, and compliance with export control laws related to the goods' export.

CREDIT and PAYMENT: Credit accounts will be opened only with firms or individuals approved by the Seller's Credit Department. Purchaser with approved payment terms agrees to pay invoiced amount to Seller on or before thirty (30) days from date of invoice unless otherwise specified and/or agreed upon in writing. All past due accounts are subject to interest at the rate of one percent (1 %) per month on the unpaid balance. Seller reserves the right at any time upon notice to purchaser, to alter or suspend credit, when in its sole opinion the financial condition of the Purchaser so warrants. In such cases, cash payment or satisfactory security from the Purchaser may be required by the Seller before credit is restored or Seller continues performance.

CANCELLATION: Cancellation shall be affected only by a written agreement and Purchaser will assume full liability for payment of any and all cancellation charges.

RETURNED GOODS: A RMA packing slip must be received and included with any returns. No material will be accepted for replacement or credit without Seller's written consent and then only under the terms of such consent. Returns for credit will include a restocking fee, unless otherwise specified and/or agreed upon in writing.

LIMITED WARRANTY: Seller warrants only goods of its own manufacture and then only to the extent that they are free from defects in material and workmanship under normal use and service for the purpose for which they were manufactured and when correctly installed and maintained within one (1) year from the date of shipment. This warranty is limited to repair or replacement of the goods FCA point of manufacture at the Seller's option. Seller does not warrant secondhand material. THESE WARRANTIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Purchaser waives any warranties of any kind whatsoever including but not limited to a waiver of any warranties of fitness, any warranties as to the suitability of the product for its intended use, and any warranties as to the return of the purchase price. It is further understood and agreed that this is Purchaser's only remedy for all claims arising or relating to the goods purchased hereunder for breach of contract and tort including negligence and strict liability and any other legal theory. Seller shall not be responsible for deterioration of any part or parts of the equipment due to corrosion, erosion or any other causes, regardless of when such deterioration occurs, after leaving the manufacturer's premises. No allowance will be granted for repairs or alterations made by Purchaser or at Purchaser's direction without Seller's written consent. Seller shall not be liable for consequential, incidental or any damages other than repair or replacement of defective goods at Seller's option. It is understood that Seller makes no warranty except as expressly stipulated herein and Seller's liability is limited as above set forth. **NOT WARRANTED:** HOPQUANG Silencers offers no paint guarantees other than preparation and application in accordance with

HOPQUANG Silencers

Standard Terms and Conditions

with manufacturer's instructions. The primary purpose of "factory black" standard coating is not aesthetic but for corrosion resistance and shipping protection. No heat curing is available. If required, curing must be done in service at the direction of others.

No representative has the authority to make any representation, promise or agreement except as stated herein.

TAXES: The Purchaser shall pay to the Seller in addition to the purchase price, the amount of any excise, sales, privilege, or use tax, local, state or federal, which is payable by the Seller because of the execution of this contract or sale or delivery of the apparatus covered hereby. Seller shall collect applicable taxes in states where Seller has nexus, unless Buyer submits a valid tax exemption certificate.

PATENTS: Notwithstanding any language to the contrary in specifications, purchase orders or elsewhere, Seller shall not be responsible for any patent infringement, or claim of patent infringement with respect to products furnished in accordance with the Purchaser's specifications or design requirements, and Purchaser shall indemnify and save Seller harmless from all claims, demands or suits growing out of or based on any patent infringement or claim thereof, arising there from.

FORCE MAJEURE: Seller shall not be liable for any delay in delivery or for non-delivery, in whole or in part caused by the occurrence of any contingency beyond the control either of Seller or suppliers to the Seller, including but not limited to war (whether an actual declaration thereof is made or not), sabotage, insurrection, rebellion, riot or other act of civil disobedience, act of a public enemy, failure or delay in transportation, act of any government or any agency or subdivision thereof, judicial action, labor dispute, fire, accident explosion, epidemic, quarantine, restrictions, storm, flood, earthquake, or other act of God, shortage of labor, fuel, raw material or machinery or technical failure, where Seller has exercised ordinary care in the prevention thereof. If any contingency occurs, Seller may allocate production and deliveries among Seller's customers.

CONFIDENTIAL INFORMATION: All drawings, diagrams, specifications and other materials furnished by Seller and identified as confidential relating to the use and service of articles furnished hereunder and the information therein are proprietary to Seller. Such materials have been developed at great expense and they contain trade secrets of the Seller. Buyer may not reproduce or distribute such materials except to Buyer's employees who may use the articles as part of their duties. All such materials relating to the article supplied directly by Seller (except information as may be established to be in the public domain or disclosed pursuant to judicial government action) shall be received in confidence and Buyer shall exercise reasonable care to hold such information in confidence.

TECHNICAL ASSISTANCE: Seller's warranty shall not be enlarged and no obligation or liability shall arise out of Seller's rendering of technical advice, facilities or services in connection with Buyer's order for the goods furnished.

