

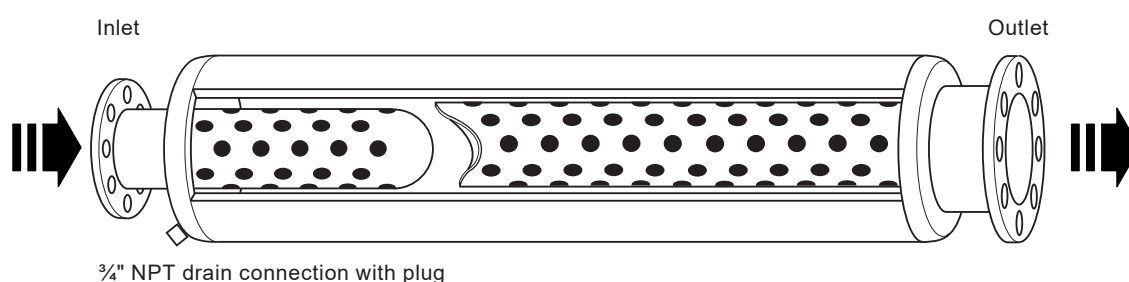


Acoustic Silencers

Description

The Spirax Sarco acoustic silencer is designed to attenuate noise generated by control valves and/or pilot operated regulators. The silencers are particularly effective in limiting the propagation of valve generated noise into the downstream piping.

Upon flow and piping configuration, noise attenuation of 20-30 dB based on noise frequency.



LCV series

Limiting operating conditions

Maximum operating pressure	300 psi g (21 bar g)
Maximum operating temperature	650 °F (343 °C)
Standard range	½" to 24" LCV Acoustic Silencers.
Connections	Standard connections ANSI 300 lb. raised face flange. ¾" - 3000 lb. drain with plug. Options of ANSI 150 lb. raised face flange available.

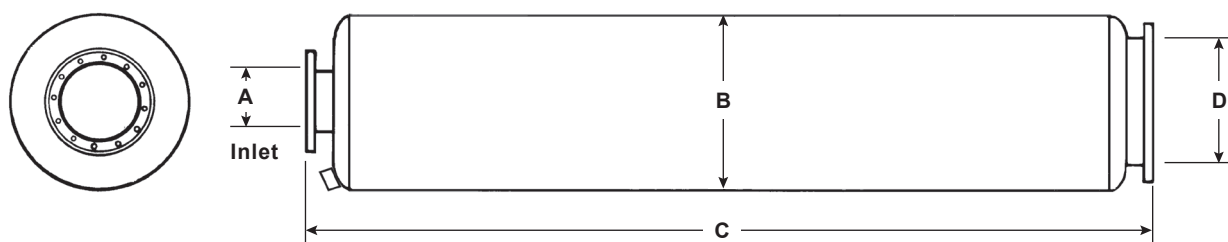
Materials

Part	Material
Silencer	All welded steel. ASME Section VIII Div I
Insulation mat	Fiberglass

Installation

Connect the inlet of the silencer directly to the outlet connection of the valve. The required pipeline expansion takes place within the silencer. This expanded outlet feature eliminates the expense associated with separate expansion fittings. A suitable float and thermostatic steam trap is recommended for removing condensate from the silencer. The drain connection must always point vertically down.

Dimensions/weights (nominal) in inches and pounds



Model	A	B	C	D	Weight
LCV-2	½" to 2"	5"	35"	2"	120
LCV-3	½" to 3"	6½"	46"	3"	150
LCV-4	½" to 4"	10"	52"	4"	200
LCV-5	¾" to 4"	12"	60"	5"	250
LCV-6	2" to 6"	12"	66"	6"	400
LCV-8	2" to 6"	14"	72"	8"	550
LCV-10	1¼" to 6"	16"	78"	10"	650
LCV-12	2" to 6"	18"	90"	12"	800
LCV-14	2½" to 6"	20"	104"	14"	1200
LCV-16	2½" to 6"	22"	116"	16"	1500
LCV-18	3" to 6"	24"	132"	18"	1750
LCV-20	4" to 6"	26"	146"	20"	2200
LCV-22	6"	30"	158"	22"	2800
LCV-24	6"	30"	174"	24"	3100
LCV-26	6"	32"	186"	26"	3500
LCV-28	6"	36"	202"	28"	4850
LCV-30	6"	36"	216"	30"	5000

Frequency table

Frequency (Hz)	63	125	250	500	1K	2K	4K	8K
DIL (ΔdBa)	-7	-15	-23	-30	-32	-30	-27	-24

Sizing acoustic silencers

Select correct silencer by known flow rates (lb/hr), inlet, outlet pressure (psig) and size of regulator or control valve.

Example: - Inlet pressure to IN 25P regulator is 100 psi g, outlet pressure is 60 psi g @ 2400 lb/hr.

- Move horizontal across the 100 psig inlet line to 60 psig outlet to vertically intersect with a 1" regulator to meet or exceed capacity of 2400 lb/hr.
- Selection 1" LCV-2.

Inlet pressure (psi g)	Outlet pressure (psi g)	Valve Size							
		1/2"		3/4"		1"		1 1/4"	
		Max.lb/hr:	Model	Max.lb/hr:	Model	Max.lb/hr:	Model	Max.lb/hr:	Model
15	10	855	LCV-2	855	LCV-2	855	LCV-2	855	LCV-2
	5	695	LCV-2	695	LCV-2	695	LCV-2	695	LCV-2
	3	630	LCV-2	630	LCV-2	630	LCV-2	630	LCV-2
20	12	920	LCV-2	920	LCV-2	920	LCV-2	920	LCV-2
	8	795	LCV-2	795	LCV-2	795	LCV-2	795	LCV-2
	0-5	520	LCV-2	520	LCV-2	1 145	LCV-3	1 145	LCV-3
25	15	1 020	LCV-2	1 020	LCV-2	1 020	LCV-2	1 020	LCV-2
	10	855	LCV-2	855	LCV-2	855	LCV-2	855	LCV-2
	0-7	520	LCV-2	520	LCV-2	1 145	LCV-3	1 145	LCV-3
30	20	1 175	LCV-2	1 175	LCV-2	1 175	LCV-2	1 175	LCV-2
	15	1 020	LCV-2	1 020	LCV-2	1 020	LCV-2	1 020	LCV-2
	0-12	520	LCV-2	520	LCV-2	1 145	LCV-3	1 145	LCV-3
40	30	1 485	LCV-2	1 485	LCV-2	1 485	LCV-2	1 485	LCV-2
	25	1 330	LCV-2	1 330	LCV-2	1 330	LCV-2	1 330	LCV-2
	0-18	520	LCV-2	1 145	LCV-3	1 145	LCV-3	1 145	LCV-3
50	40	1 795	LCV-2	1 795	LCV-2	1 795	LCV-2	1 795	LCV-2
	30	1 485	LCV-2	1 485	LCV-2	1 485	LCV-2	1 485	LCV-2
	0-21	520	LCV-2	1 145	LCV-3	1 145	LCV-3	2 305	LCV-4
60	45	1 950	LCV-2	1 950	LCV-2	1 950	LCV-2	1 950	LCV-2
	35	1 640	LCV-2	1 640	LCV-2	1 640	LCV-2	1 640	LCV-2
	0-27	250	LCV-2	1 145	LCV-3	2 305	LCV-4	2 305	LCV-4
75	60	2 405	LCV-2	2 405	LCV-2	2 405	LCV-2	2 405	LCV-2
	50	2 010	LCV-2	2 010	LCV-2	2 010	LCV-2	2 010	LCV-2
	0-35	520	LCV-2	1 145	LCV-3	2 305	LCV-4	2 305	LCV-4
85	70	2 705	LCV-2	2 705	LCV-2	2 705	LCV-2	2 705	LCV-2
	50	2 100	LCV-2	2 100	LCV-2	2 100	LCV-2	2 100	LCV-2
	0-43	520	LCV-2	1 145	LCV-3	2 305	LCV-4	2 305	LCV-4
100	80	3 005	LCV-2	3 005	LCV-2	3 005	LCV-2	3 005	LCV-2
	60	2405	LCV-2	2 405	LCV-2	2 405	LCV-2	2 405	LCV-2
	0-48	1 145	LCV-3	1 145	LCV-3	2 305	LCV-4	3 490	LCV-5
125	100	3 600	LCV-2	3 600	LCV-2	3 600	LCV-2	3 600	LCV-2
	80	3 005	LCV-2	3 005	LCV-2	3 005	LCV-2	3 005	LCV-2
	0-62	1 145	LCV-3	2 305	LCV-4	2 305	LCV-4	3 490	LCV-5

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Sizing acoustic silencers (continued)

Inlet pressure (psi g)	Outlet pressure (psi g)	Valve Size							
		1/2"		3/4"		1"		1 1/4"	
		Max.lb/hr:	Model	Max.lb/hr:	Model	Max.lb/hr:	Model	Max.lb/hr:	Model
150	125	4 155	LCV-2	4 155	LCV-2	4 155	LCV-2	4 155	LCV-2
	100	3 600	LCV-2	3 600	LCV-2	3 600	LCV-2	3 600	LCV-2
	0-76	1 145	LCV-3	2 305	LCV-4	3 490	LCV-5	3 490	LCV-5
175	150	5 110	LCV-2	5 110	LCV-2	5 110	LCV-2	5 110	LCV-2
	125	4 155	LCV-2	4 155	LCV-2	4 155	LCV-2	4 155	LCV-2
	0-87	1 145	LCV-3	2 305	LCV-4	3 490	LCV-5	5 035	LCV-6
200	150	5 110	LCV-2	5 110	LCV-2	5 110	LCV-2	5 110	LCV-2
	125	4 155	LCV-2	4 155	LCV-2	4 155	LCV-2	9 560	LCV-3
	0-103	1 145	LCV-3	2 305	LCV-4	3 490	LCV-5	5 035	LCV-6
225	175	5 815	LCV-2	5 815	LCV-2	5 815	LCV-2	5 815	LCV-2
	150	5 110	LCV-2	5 110	LCV-2	5 110	LCV-2	5 110	LCV-2
	0-117	2 305	LCV-4	3 490	LCV-5	5 035	LCV-6	5 035	LCV-6
250	200	6 560	LCV-2	6 560	LCV-2	6 560	LCV-2	6 560	LCV-2
	150	5 110	LCV-2	5 110	LCV-2	5 110	LCV-2	11 250	LCV-3
	0-131	2 305	LCV-4	3 490	LCV-5	5 035	LCV-6	8 530	LCV-8
275	225	7 285	LCV-2	7 285	LCV-2	7 285	LCV-2	7 285	LCV-2
	200	6 500	LCV-2	6 500	LCV-2	6 500	LCV-2	6 500	LCV-2
	0-145	2 305	LCV-4	3 490	LCV-5	5 035	LCV-6	8 530	LCV-8
300	250	8 025	LCV-2	8 025	LCV-2	8 025	LCV-2	8 025	LCV-2
	225	7 285	LCV-2	7 285	LCV-2	7 285	LCV-2	7 285	LCV-2
	0-160	2 305	LCV-4	3 490	LCV-5	5 035	LCV-6	8 530	LCV-8

Table continued on next page

Sizing acoustic silencers (continued)

Inlet pressure (psi g)	Outlet pressure (psi g)	Valve Size							
		1½"		2"		2½"		3"	
		Max.lb/hr:	Model	Max.lb/hr:	Model	Max.lb/hr:	Model	Max.lb/hr:	Model
15	10	855	LCV-2	1 885	LCV-3	1 885	LCV-3	3 790	LCV-4
	5	1 530	LCV-2	1 530	LCV-3	3 075	LCV-4	3 075	LCV-4
	3	1 385	LCV-3	2 780	LCV-4	2 785	LCV-4	4 215	LCV-5
20	12	920	LCV-2	2 025	LCV-3	2 025	LCV-3	4 065	LCV-4
	8	1 745	LCV-3	1 745	LCV-3	3 510	LCV-4	3 510	LCV-4
	0-5	1 145	LCV-3	2 305	LCV-4	3 490	LCV-5	5 035	LCV-6
25	15	1 020	LCV-2	2 245	LCV-3	4 510	LCV-4	4 510	LCV-4
	10	1 895	LCV-3	3 790	LCV-4	3 790	LCV-4	5 740	LCV-5
	0-7	2 305	LCV-4	2 305	LCV-4	3 490	LCV-5	5 035	LCV-6
30	20	1 175	LCV-2	2 585	LCV-3	2 585	LCV-3	5 190	LCV-4
	15	2 245	LCV-3	2 245	LCV-3	4 510	LCV-4	6 830	LCV-5
	0-12	2 305	LCV-4	3 490	LCV-5	5 035	LCV-6	5 035	LCV-6
40	30	1 485	LCV-2	3 275	LCV-3	3 275	LCV-3	6 575	LCV-4
	25	2 930	LCV-3	2 930	LCV-3	5 885	LCV-4	5 885	LCV-4
	0-18	2 305	LCV-4	3 490	LCV-5	5 035	LCV-6	8 530	LCV-8
50	40	1 795	LCV-2	3 955	LCV-3	3 955	LCV-3	7 940	LCV-4
	30	3 275	LCV-3	3 275	LCV-3	6 575	LCV-4	9 955	LCV-6
	0-21	2 305	LCV-4	5 035	LCV-6	8 530	LCV-8	8 530	LCV-8
60	45	1 950	LCV-2	4 290	LCV-3	8 615	LCV-4	8 615	LCV-4
	35	3 615	LCV-3	3 615	LCV-3	7 260	LCV-4	10 995'	LCV-5
	0-27	2 305	LCV-4	5 035	LCV-6	8 530	LCV-8	8 530	LCV-8
75	60	2 405	LCV-2	5 295	LCV-3	5 295	LCV-3	10 635	LCV-4
	50	4 825	LCV-3	4 825	LCV-3	9 290	LCV-4	9 290	LCV-4
	0-35	3 490	LCV-5	5 035	LCV-6	8 530	LCV-8	13 430	LCV-10
85	70	2 705	LCV-2	5 955	LCV-3	5 953	LCV-3	11 960	LCV-4
	50	4 625	LCV-3	9 290	LCV-4	9 290	LCV-4	14 075	LCV-5
	0-43	3 490	LCV-5	8 530	LCV-8	8 530	LCV-8	13 430	LCV-10
100	80	3 005	LCV-2	6 620	LCV-3	6 620	LCV-3	13 290	LCV-4
	60	5 295	LCV-3	10 635	LCV-4	10 635	LCV-4	16 110	LCV-5
	0-48	3 490	LCV-5	8 530	LCV-8	13 430	LCV-10	13 430	LCV-10
125	100	3 600	LCV-2	7 930	LCV-3	7 930	LCV-3	15 920	LCV-4
	80	6 615	LCV-3	13 285	LCV-4	13 285	LCV-4	20 125	LCV-5
	0-62	5 035	LCV-6	8 530	LCV-8	13 430	LCV-10	19 030	LCV-12
150	125	4 155	LCV-2	9 560	LCV-3	9 560	LCV-3	19 195	LCV-4
	100	7 930	LCV-3	15 920	LCV-4	15 920	LCV-4	24 115	LCV-5
	0-76	5 035	LCV-6	13 430	LCV-10	19 030	LCV-12	19 030	LCV-12

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Sizing acoustic silencers (continued)

Inlet pressure (psi g)	Outlet pressure (psi g)	Valve Size			
		4"		6"	
		Max.lb/hr:	Model	Max.lb/hr:	Model
15	10	3 790	LCV-4	8 280	LCV-6
	5	4 675	LCV-5	11 370	LCV-8
	3	6 080	LCV-8	16 210	LCV-10
20	12	4 065	LCV-4	15 040	LCV-8
	8	5 315	LCV-5	12 985	LCV-6
	0-5	8 530	LCV-8	13 430	LCV-10
25	15	6 830	LCV-5	16 685	LCV-8
	10	8 280	LCV-6	22 080	LCV-10
	0-7	8 530	LCV-8	19 030	LCV-12
30	20	5 190	LCV-4	19 210	LCV-8
	15	9 850	LCV-6	16 665	LCV-8
	0-12	8 530	LCV-8	19 030	LCV-12
40	30	6 575	LCV-4	14 360	LCV-6
	25	8 910	LCV-5	21 770	LCV-8
	0-18	13 430	LCV-10	23 015	LCV-14
50	40	7 940	LCV-4	17 350	LCV-6
	30	14 360	LCV-6	24 315	LCV-8
	0-21	13 430	LCV-10	30 225	LCV-16
60	45	13 050	LCV-5	31 880	LCV-8
	35	16 860	LCV-6	26 860	LCV-8
	0-27	13 430	LCV-10	30 225	LCV-16
75	60	10 635	LCV-4	23 235	LCV-6
	50	14 075	LCV-5	34 375	LCV-8
	0-35	19 030	LCV-12	38 395	LCV-18
85	70	11 960	LCV-4	26 125	LCV-6
	50	20 300	LCV-6	54 125	LCV-10
	0-43	19 030	LCV-12	47 530	LCV-20
100	80	13 290	LCV-4	29 030	LCV-6
	60	23 235	LCV-6	61 950	LCV-10
	0-48	23 105	LCV-14	47 530	LCV-20
125	100	15 920	LCV-4	34 765	LCV-6
	80	29 025	LCV-6	77 390	LCV-10
	0-62	30 225	LCV-16	57 851	LCV-22
150	125	19 195	LCV-4	41 935	LCV-6
	100	34 785	LCV-6	111 815	LCV-10
	0-76	30 225	LCV-16	68 755	LCV-24

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Sizing acoustic silencers (continued)

Inlet pressure (psi g)	Outlet pressure (psi g)	Valve Size							
		1½"		2"		2½"		3"	
		Max.lb/hr:	Model	Max.lb/hr:	Model	Max.lb/hr:	Model	Max.lb/hr:	Model
175	150	5 110	LCV-2	5 110	LCV-2	11 250	LCV-3	11 250	LCV-3
	125	9 560	LCV-3	9 560	LCV-3	19 195	LCV-4	19 195	LCV-4
	0-87	8 530	LCV-8	13 430	LCV-10	19 030	LCV-12	23 015	LCV-14
200	150	5 110	LCV-2	11 250	LCV-3	22 585	LCV-4	22 585	LCV-4
	125	9 560	LCV-3	19 195	LCV-4	19 195	LCV-4	29 075	LCV-5
	0-103	8 530	LCV-8	13 430	LCV-10	19 030	LCV-12	30 225	LCV-16
225	175	5 815	LCV-2	12 805	LCV-3	25 715	LCV-4	25 715	LCV-4
	150	11 250	LCV-3	22 585	LCV-4	22 585	LCV-4	34 210	LCV-5
	0-117	8 530	LCV-8	13 430	LCV-10	23 015	LCV-14	30 525	LCV-16
250	200	6 560	LCV-2	14 450	LCV-3	29 010	LCV-4	29 010	LCV-4
	150	11 250	LCV-3	22 585	LCV-4	22 585	LCV-4	34 210	LCV-5
	0-131	8 530	LCV-8	19 030	LCV-12	23 015	LCV-14	30 225	LCV-16
275	225	7 285	LCV-2	16 045	LCV-3	16 045	LCV-4	32 220	LCV-4
	200	14 450	LCV-3	14 450	LCV-3	29 010	LCV-4	29 010	LCV-4
	0-145	13 430	LCV-10	19 930	LCV-12	20 225	LCV-16	38 395	LCV-18
300	250	8 025	LCV-2	17 685	LCV-3	17 685	LCV-3	35 475	LCV-4
	225	7 285	LCV-2	16 048	LCV-3	32 220	LCV-4	32 220	LCV-4
	0-160	13 430	LCV-10	19 030	LCV-12	30 225	LCV-16	38 395	LCV-18

Table continued on next page

Sizing acoustic silencers (continued)

Inlet pressure (psi g)	Outlet pressure (psi g)	Valve Size			
		4"		6"	
		Max.lb/hr:	Model	Max.lb/hr:	Model
175	150	22 585	LCV-4	49 340	LCV-6
	125	29 075	LCV-5	71 015	LCV-8
	0-87	38 395	LCV-18	80 175	LCV-26
200	150	34 210	LCV-5	83 550	LCV-8
	125	41 935	LCV-6	111 815	LCV-10
	0-103	38 395	LCV-18	93 180	LCV-28
225	175	38 950	LCV-5	95 130	LCV-8
	150	49 340	LCV-6	131 550	LCV-10
	0-117	47 530	LCV-20	107 175	LCV-30
250	200	43 940	LCV-5	107 320	LCV-8
	150	49 340	LCV-6	131 555	LCV-10
	0-131	47 530	LCV-20	107 175	LCV-30
275	225	32 220	LCV-5		
	200	43 940	LCV-5		
	0-145	57 650	LCV-22		
300	250	35 475	LCV-4		
	225	48 800	LCV-5		
	0-160	57 650	LCV-22		