



**SONIC MATERIAL ACTIVATION SYSTEMS**

# **AcoustiClean Sonic Horn Installation and Operation Instructions**



**Model ACL 9475  
Model ACL 17220  
Model ACL 34230  
Model ACL 53100  
Model A600**



**CONTROL  
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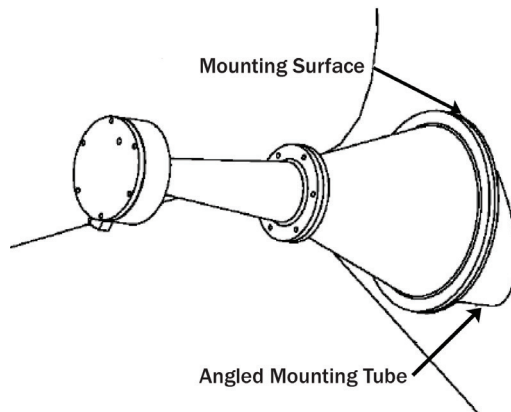
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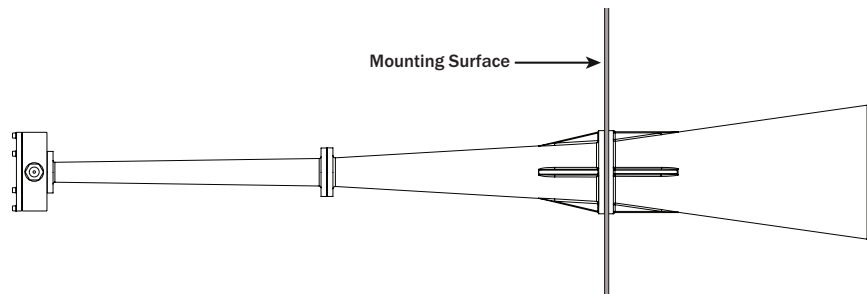
## INSTALLATION INSTRUCTIONS

1. AcoustiClean® Sonic Horns must be solidly mounted to a vessel by either bolting it through the largest flange or through an interim flange. The horns require a complete and unrestricted hole cut into the vessel for the sound to pass through. The horns are designed to be installed by one of the following methods, depending on the type of horn:

- A. Flush mounted** – The end of the largest bell section is mounted flush to the outside of the vessel. The mounting surface of the horn must be secured such that the sound can exhaust from the end of the bell into the vessel.

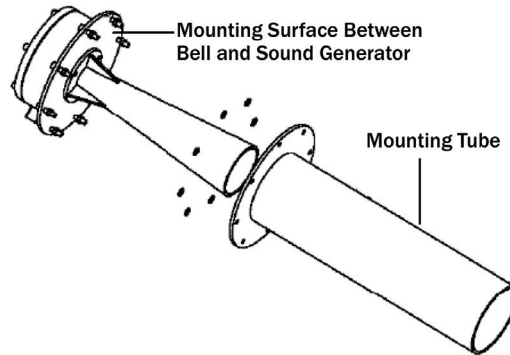


- B. Mounting surface sandwiched between bell sections** – The horn is mounted such that the end of the last or middle bell section protrudes inside the vessel.



**INSTALLATION INSTRUCTIONS** *continued*

- C. Mounting surface sandwiched between bell section(s) and sound generator – The horn is mounted with all bell sections protruding into the vessel. This approach is to be used for mounting the Model A600 horn, where the small end of the bell section will be put through a 4-1/2" hole from the inside of the vessel and attached to the sound generator, which will then be bolted to the vessel. A mounting tube is not needed to install the Model A600.

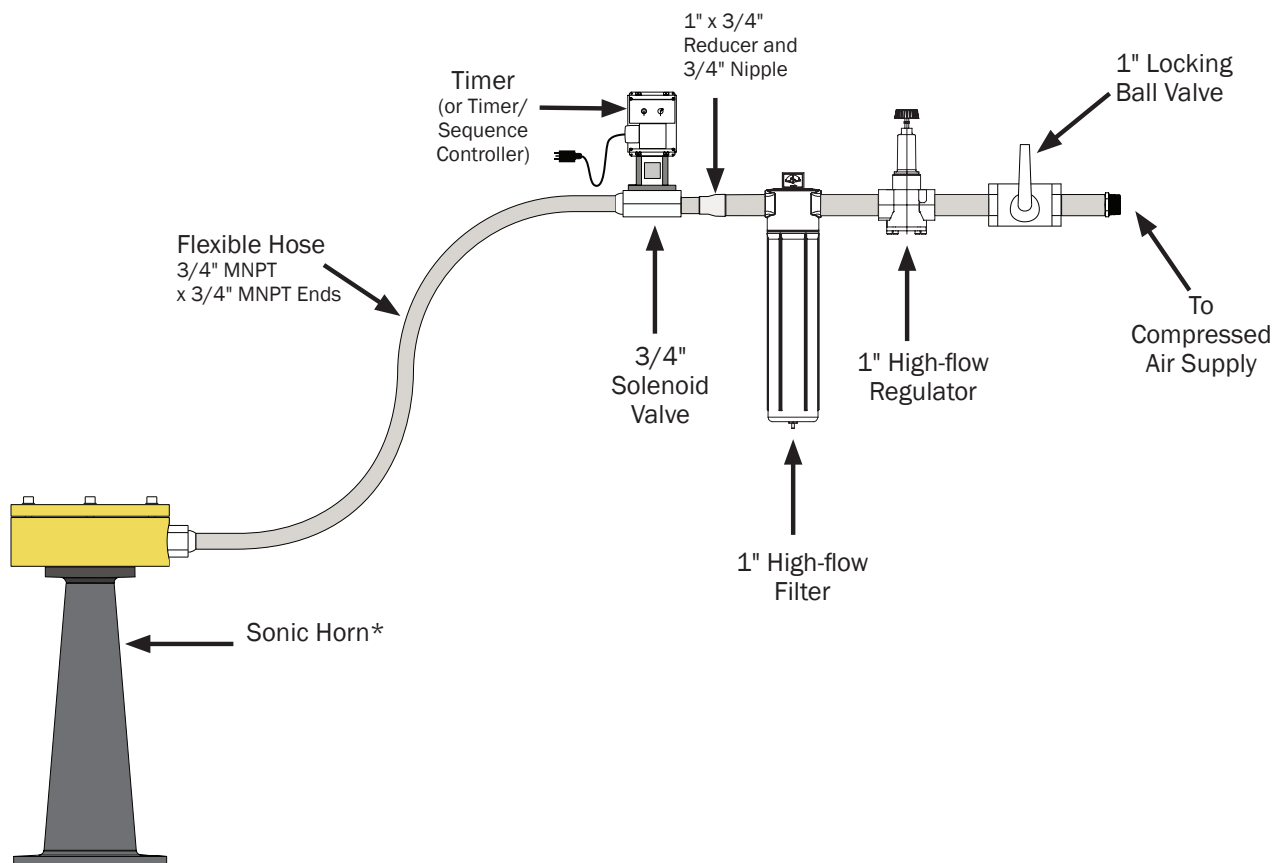


- D. A horn could be hung on a chain inside a bag house, duct or vessel if no other option is available.
2. AcoustiClean® Sonic horns are designed to be installed either horizontally, vertically, or facing downward between horizontal and vertical.
  3. All bolts, nuts and washers must be securely tightened and the horn mounted to the vessel before sounding the horn off.
  4. Gasket material is not required between flat mating surfaces of the bells.
  5. All installation, piping, and air requirements specified in this document should be followed to ensure the most effective cleaning results.

## PIPING AND AIR REQUIREMENTS for Models ACL 17220 / 34230 / 53100 / 9475

(See next page for Model A600)

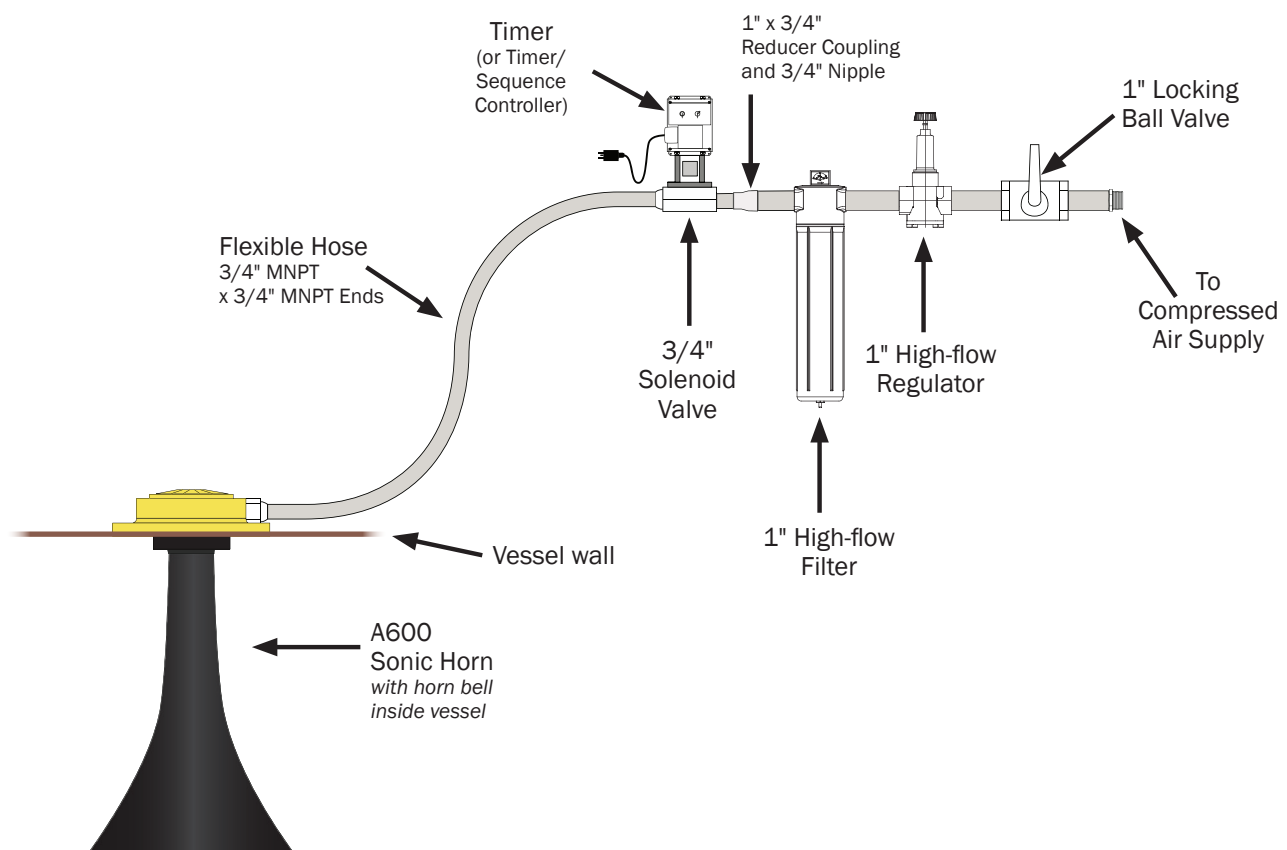
1. Air pressure requirements: 70-90 PSI
2. Air volume requirements: 40-80 CFM  
*Note: At 80 PSI, the horn will use approximately 60 CFM of air.*  
 A 10-second sound blast will use approximately 10 CFM of air.
3. A 1" rigid air supply pipe is required to bring the air within 24" of the sound generator.
4. While a filter air regulator is not required, it is recommended if the plant air system is excessively wet or dirty.
5. A locking ball valve should be installed for safety and maintenance isolation.
6. A 3/4" solenoid valve mounted on a 1" to 3/4" rigid reducer, followed by a 3/4" x 30" long stainless steel braided flex hose is recommended for actuation of the AcoustiClean® Sonic Horn.
7. A DIN plug mounted solenoid can be provided by Control Concepts.



\* Sonic horn depicted is representative of a general horn and not a specific model.

## PIPING AND AIR REQUIREMENTS for Model A600

1. Air pressure requirements: 70-90 PSI
2. Air volume requirements: 40-80 CFM  
 Note: At 80 PSI the horn will use approximately 60 CFM of air.  
 A 10 second sound blast will use approximately 10 CFM of air.
3. A 1" rigid air supply pipe is required to bring the air within 24" of the sound generator.
4. While a filter air regulator is not required, it is recommended if the plant air system is excessively wet or dirty.
5. A locking ball valve should be installed for safety and maintenance isolation.
6. A 3/4" solenoid valve mounted on a 1" to 3/4" rigid reducer, followed by a 3/4" x 30" long stainless steel braided flex hose is recommended for actuation of the AcoustiClean® Sonic Horn.
7. A DIN plug mounted solenoid can be provided by Control Concepts.





Pilot Operated  
**General Service Solenoid Valves**  
 Brass or Stainless Steel Bodies  
 3/8" to 2 1/2" NPT

**2/2**  
**SERIES**  
**8210**

2-WAY

## Features

- Wide range of pressure ratings, sizes, and resilient materials provide long service life and low internal leakage
- High flow valves for liquid, corrosive, and air/inert gas service
- Lead-free versions available for Safe Drinking Water Act Compliance
- Industrial applications include:
  - Car wash
  - Laundry equipment
  - Air compressors
  - Industrial water control
  - Pumps

## Construction

Valve Parts in Contact with Fluids		
Body	Brass	304 Stainless Steel*
Seals and Discs	NBR or PTFE	
Disc-Holder	PA	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel	
Shading Coil	Copper	Silver

\*Catalog Numbers 8210G127, 8210G129, 8210G132, 8210G133 have 316L Stainless Steel bodies.

## Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
	DC Watts	AC			General Purpose		Explosionproof	
		Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	-	6.1	16	40	238210	-	238214	-
F	11.6	10.1	25	70	238610	238710	238614	238714
F	16.8	16.1	35	180	272610	97617	272614	97617
F	-	17.1	40	93	238610	-	238614	-
F	-	20	43	240	99257	-	99257	-
F	-	20.1	48	240	272610	-	272614	-
F	30.8	-	-	-	-	501695	-	501696
H	11.6	-	-	-	-	238910	-	238914
H	40.6	-	-	-	-	238910	-	238914

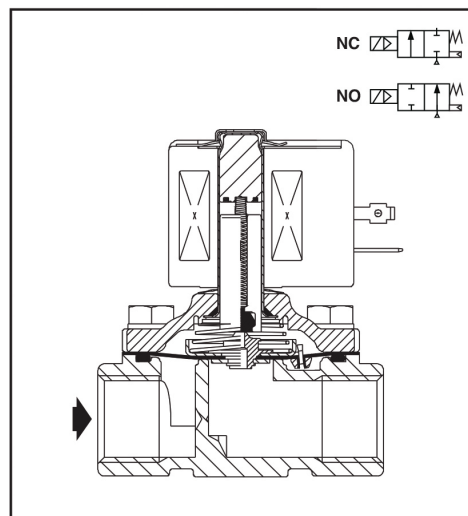
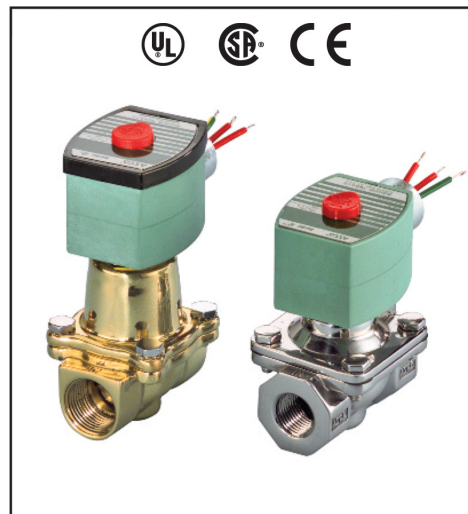
**Standard Voltages:** 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering.  
 Other voltages available when required.

## Solenoid Enclosures

**Standard:** RedHat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X; RedHat - Type I.

**Optional:** RedHat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9; Red-Hat - Explosionproof and Watertight, Types 3, 4, 4X, 7, and 9.

(To order, add prefix "EF" to catalog number, except Catalog Numbers 8210B057, 8210B058, and 8210B059, which are not available with Explosionproof enclosures.)  
 See Optional Features Section for other available options.



## Nominal Ambient Temp. Ranges

RedHat II/RedHat AC: 32°F to 125°F (0°C to 52°C)

RedHat II DC: 32°F to 104°F (0°C to 40°C)

RedHat DC: 32°F to 77°F (0°C to 25°C)  
 (104°F/40°C occasionally)

8210G227 AC: 32°F to 130°F (0°C to 54°C)

DC: 32°F to 90°F (0°C to 32°C)

Refer to Engineering Section for details.

## Approvals

UL listed as indicated. CSA certified.

RedHat II meets applicable CE directives.

Refer to Engineering Section for details.

ATEX/IECEx certified with prefix "EV" as listed. Refer to Optional Features Electrical Section for details.

## OPERATING INSTRUCTIONS

1. Horns should never be operated without proper hearing protection.
2. Never operate sonic horns when personnel are inside the vessel, or up or down-stream of the gas flow. Ensure safety procedures are established to "lock out" horns from being operated during vessel maintenance.
3. For most applications it is recommended to sound each horn for 10 seconds every 10 minutes when the vessel is in operation, or during evacuation and particle loading. If the production loading or evacuation cycle of the vessel is infrequent, then the horns may be sounded at the end of the cycle for 20 seconds.

## MAINTENANCE

1. It is recommended that the titanium diaphragm be replaced each year in order to maintain effective cleaning. This schedule is based on 10 second usage every 10 minutes, 24 hours per day, every day of the week. Maintenance frequency may vary based on usage.
2. Sound generators should be returned to Control Concepts for reconditioning approximately every 5 years due to wearing of the titanium seating surfaces. This recommended time period may be adjusted based upon individual usage.

## TIMER CONTROL

1. For effective cleaning it is recommended that AcoustiClean® Sonic Horns be sounded off at regular intervals whenever there is a chance of particle loading, plugging or bridging. It is recommended that an electrical timer be used to control the horn sounding intervals. Timers may be PLC driven, relays or solid state.
2. Control Concepts can provide a DIN plug mounted timer (ASCO P/N272839-001) upon request see below:

# ASCO®

## Adjustable Electronic Timer Accessories

### Features

- Solid state electronic timer used to automatically control ASCO solenoid valves
- Typically used with ASCO Solenoid Valves for automatic draining of condensate in compressed air systems
- Selectable timing ranges (2-40 seconds "on"; 30 seconds to 45 minutes "off")
- Manual override for test/reset
- LED lights to indicate timing phase

### Technical Specifications

Supply Voltage	24 - 240V AC/DC 50/60 Hz
Current Consumption	4 mA max.
Operating Temperature	14°F - 122°F
Environmental Protection	Type 4
Switch Capacity	1 Amp
Inrush Current Capacity	10 Amps for 10 mSec
Duty Cycle	100%
Repeat Accuracy	± 0.1%
Scale Accuracy	± 10%
Reset/Test	Manual Touch Switch
Printed Circuit Board	UL 94V0
Connection	DIN 43650 ISO-4400/6952
Indicators	LEDs to indicate phases
On Time	Adjustable from 2 to 40 sec.
Off Time	Adjustable from 30 sec to 45 min.



### Timer and Accessories Kit Numbers

Timer Catalog Number:	272839-001 272839-009**
Power Cord* Kit Number:	272852
DIN Connector Kit Number:	272873

\* 6' power cord has DIN connector and 3-prong plug for wall outlet.  
\*\* For use with DIN 11 CDV Assemblies.

**WARRANTY & PARTS**

1. The warranty period for all Control Concepts AcoustiClean® Sonic Horns is 24 months from the date of installation.
2. Replacement parts, solenoid valves, timers, flex hoses, filter regulators, and ball valves can be obtained from Control Concepts by calling (860) 928-6551.

