

Hardened Structures Hardened Shelters, LLC

Installation and Operation Manual

for

ASR-50-OP Overpressure Relief Valve



Wall mount



Ceiling mount



Blast valve - wall mount



Blast valve - ceiling mount

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Description, Specifications, and Configurations

Description

The ASR-50-OP Overpressure Relief Valve is constructed from high grade stainless steel, a chemical resistant latex rubber membrane and high impact acrylonitrile butadiene styrene. It has a weight 48½ ounces (1.4 kilograms) - without the blast valve attached.

Configurations

The ASR-50-OP Overpressure Relief Valve kit may be configured for installation on either a wall or ceiling exhaust port, with or without a blast valve.

Overpressure

The Safe Cell air filtration system works by drawing outside air through its filter banks and introducing it into the shelter area creating a slight overpressure. This overpressure prevents unfiltered air or toxins from migrating into the shelter area through any openings or cracks.

Adjusting the room overpressure and airflow

The overpressure relief valve is the variable factor which governs airflow and overpressure in an airtight shelter room and has been preset at the factory for optimum performance.

Should you wish to change the pressure setting we urge you to first consult with technical support at the factory at telephone 541-459-1806.

An airflow at 5-CFM (cubic feet per minute) per person at 0.3-inch w/g (water gauge) is recommended. This meets the Class-1 Filtration requirement for Collective Protection as put forth by the Department of the Army, Corps. of Engineers No. ETL 1110-3-498.

Valve Functions

Your ASR-OP overpressure valve serves two functions:

1. It creates and maintains an overpressure in the shelter by adding the proper resistance to the exhaust air outflow. The valve is normally closed and opens when the air pressure inside the shelter has reached the adjusted release point of 0.3 to 0.75-inches of water column.
2. It automatically closes when a positive pressure wave from an explosion exceeds the internal pressure of the shelter - up to 2.5 psi. When the outside air pressure returns to normal the overpressure valve automatically returns to its normal operational state. For more protection, the blast valve must be installed before the overpressure relief valve as in the ASR-OP-BVWM and ASR-OP-BVCM configurations.

An airtight shelter must have an exhaust vent with an overpressure valve installed on an opposite wall of the filtration unit output to insure that the sufficient per occupant ventilation rate is taking place as well as proper overpressure.

Installation steps

Mounting Location

The overpressure valve body must be installed inside the sheltered area.

The valve body must be installed over the exhaust port.

All exhaust air must pass through the overpressure valve.

The valve body must be installed on a opposite wall from the filter unit in order to prevent short circuiting of the airflow.

The ASR-OP-08 overpressure valve may be easily configured by the installer to accommodate any of the configurations described in this manual.

1. The overpressure valve is installed inside the shelter room as shown. in figurers 1 through 4 and B-E, on the following pages.
2. Locate and cut the exhaust vent hole through the shelter wall - minimum diameter of 3-inches/76-mm.
3. Layout and drill holes for lug bolt anchors as shown in fig. 2 in the installation section of this manual, taking care to insure that the overpressure valve hole pattern is centered over the exhaust vent hole cutout.
4. Fasteners
ASR-OP-50-blast valves (without the blast valve):
due to the variation of construction methods used for protected spaces, the fasteners are not included. For standard stick-built construction, it is recommended that two of the screw fasteners (either the left or right two holes) be anchored into a wall stud. The other two fasteners should be drywall anchors and screws. The appropriate sized washer must be used as well. For concrete walls, lag bolts are recommended.
5. Apply a liberal amount of silicone caulking compound to the mating face of the overpressure valve mounting flange.
6. Secure the overpressure valve and tighten the anchor screws to their rated torque using across torque pattern.

Installation drawing - without the blast valve

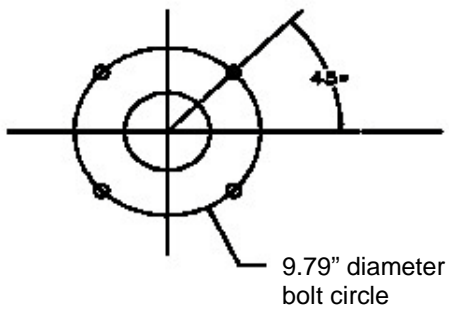
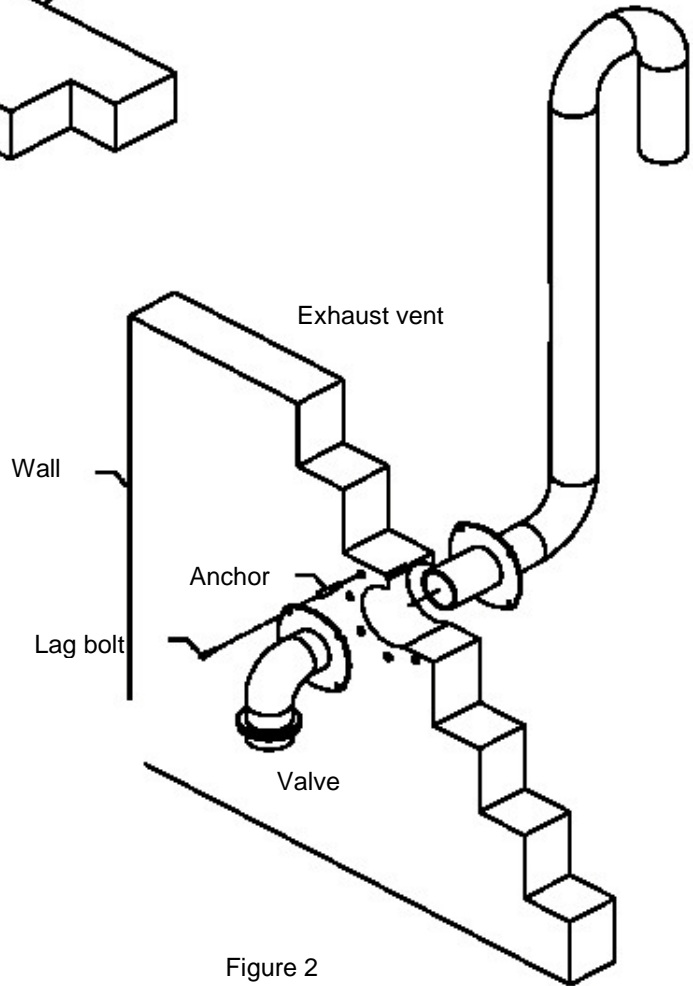
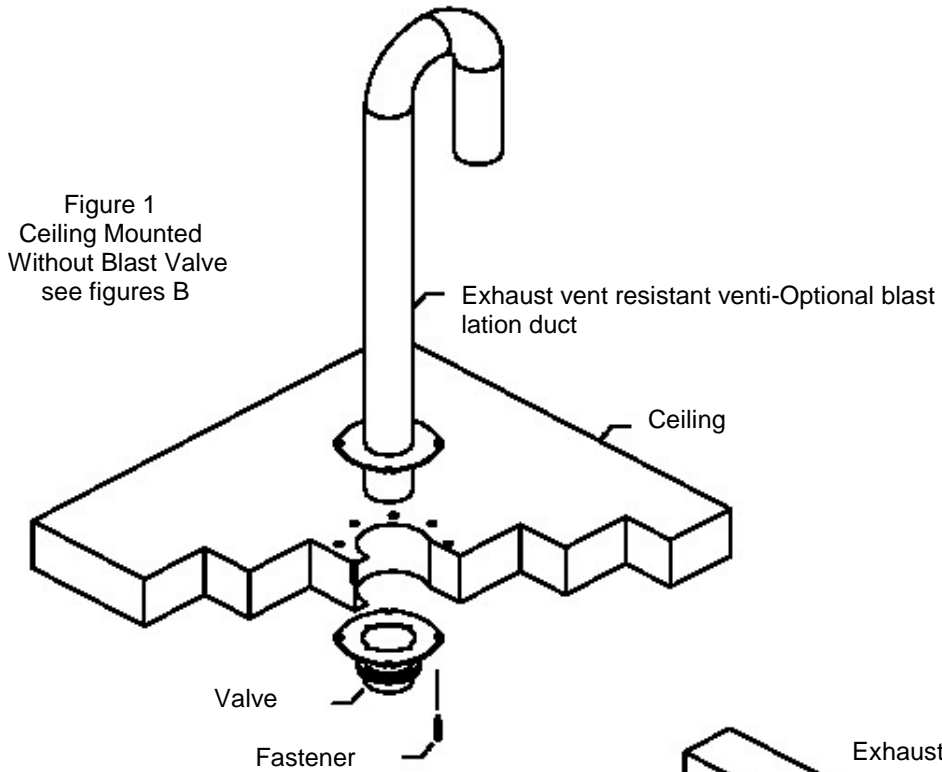


Figure 3
Hole pattern

Figure 2
Ceiling Mounted
Without Blast Valve
see figure D

Installation drawing - with the blast valve

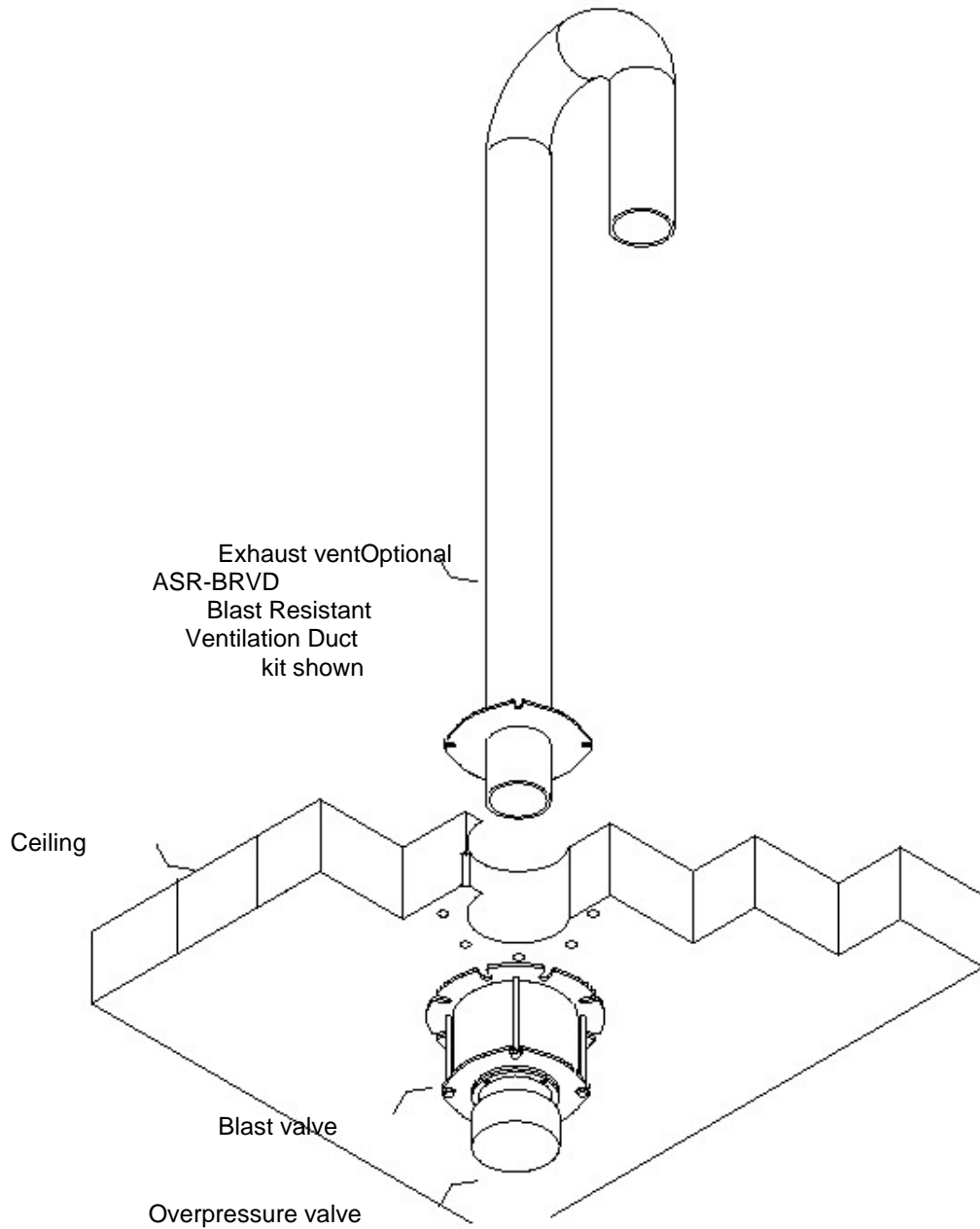
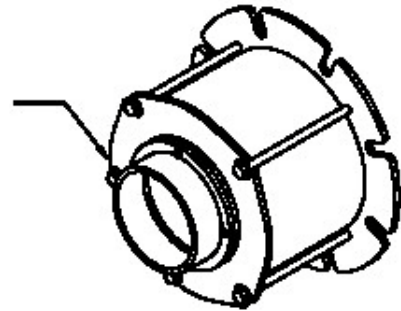


Figure 4
Ceiling Mount with Blast Valve
see figure C

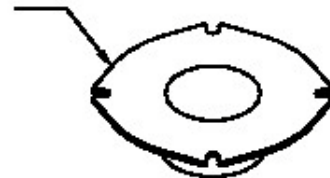
Please note:
The wall mount configuration
(ASR-OP-BVWM) is identical to
this except for the orientation of
the valves

Installation Parts

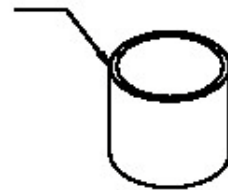
#1 See blast valve manual
This item is furnished separately



#2 Mounting plate



#3 Straight adaptor



#4 Overpressure valve



#5 Elbow

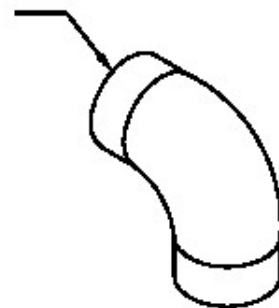


Figure A.0
Parts identification drawings

Ceiling installation without blast valve

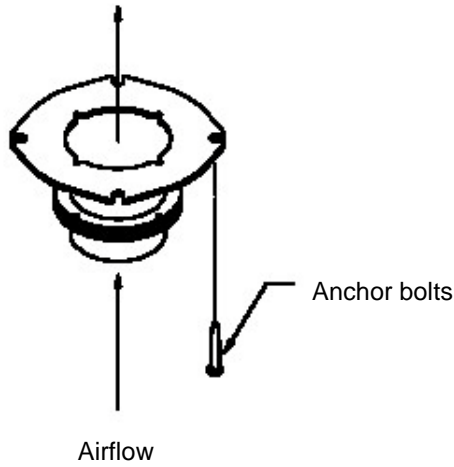


Figure B.0
Overpressure Valve
Finished Ceiling Installation

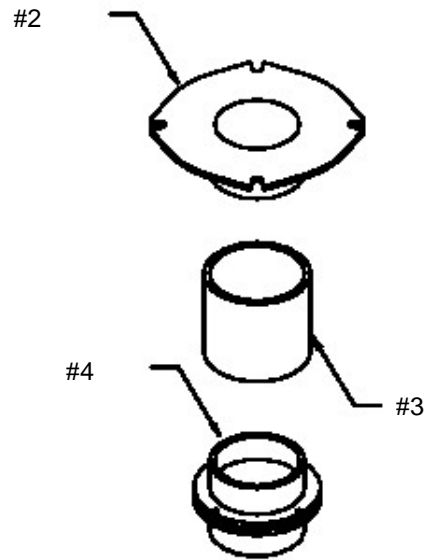


Figure B.1
Overpressure Valve Assembly option
when exhaust port is flush with ceiling

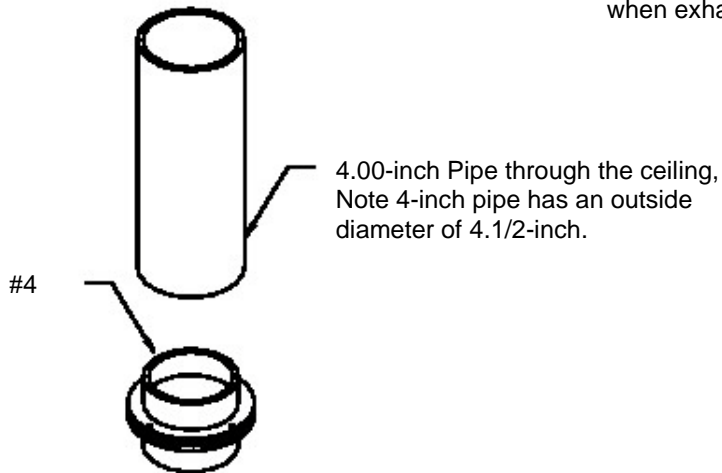


Figure B.2
Overpressure Valve Assembly option
when exhaust port protrudes 2-inch
past the ceiling

Ceiling installation with blast valve

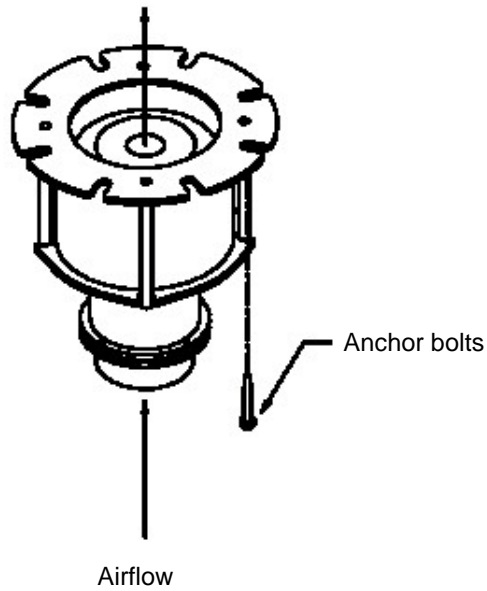


Figure C.0
Overpressure Valve with Blast valve
Finished Ceiling Installation

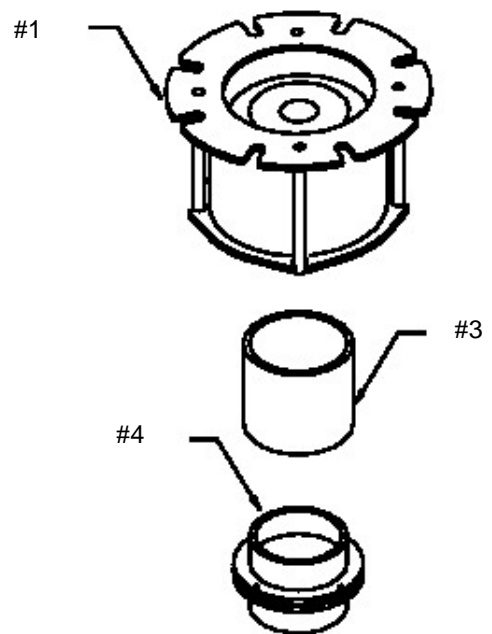


Figure C.1
Overpressure Valve Assembly when
used with ceiling mounted Blast Valve

Wall installation without blast valve

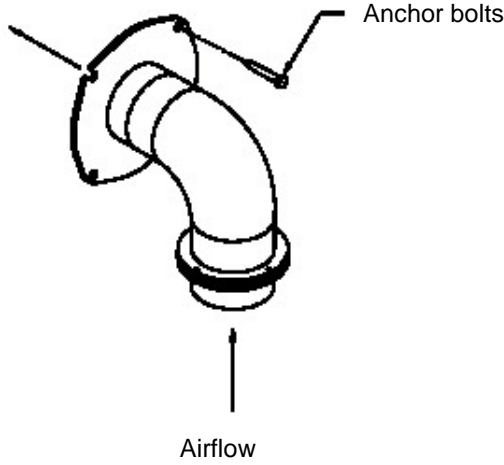


Figure D.0
Overpressure Valve
Finished Wall Installation

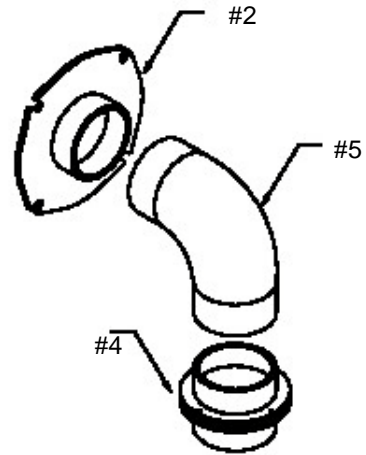


Figure B.1
Overpressure
Valve Assembly
option when
exhaust port is
flush with wall

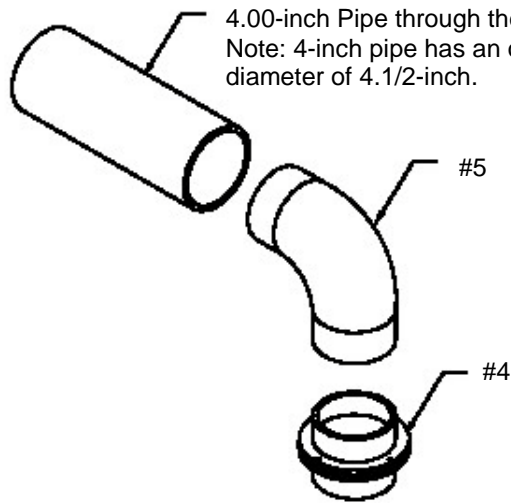


Figure D.2
Overpressure Valve Assembly option
when exhaust port protrudes 2-inch
past the inside wall

Wall installation with Blast Valve

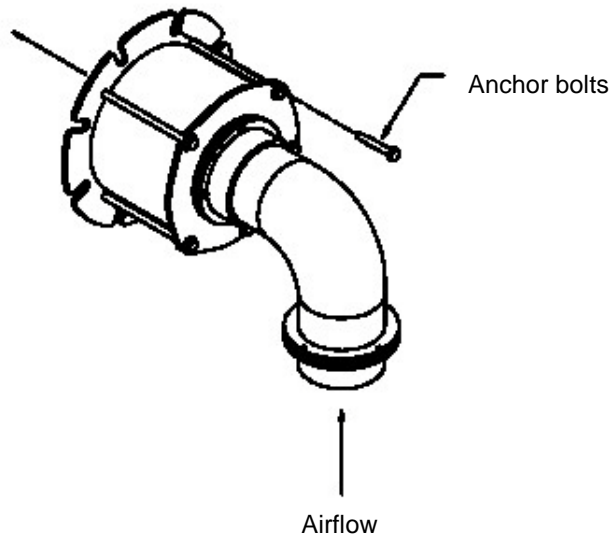


Figure E.0
Overpressure Valve with Blast Valve
Finished Wall Installation

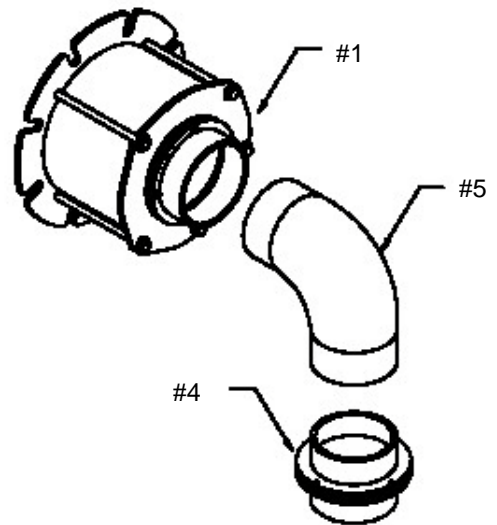


Figure E.1
Overpressure Valve Assembly when
used with wall mounted Blast Valve

Valve Body Parts Drawing

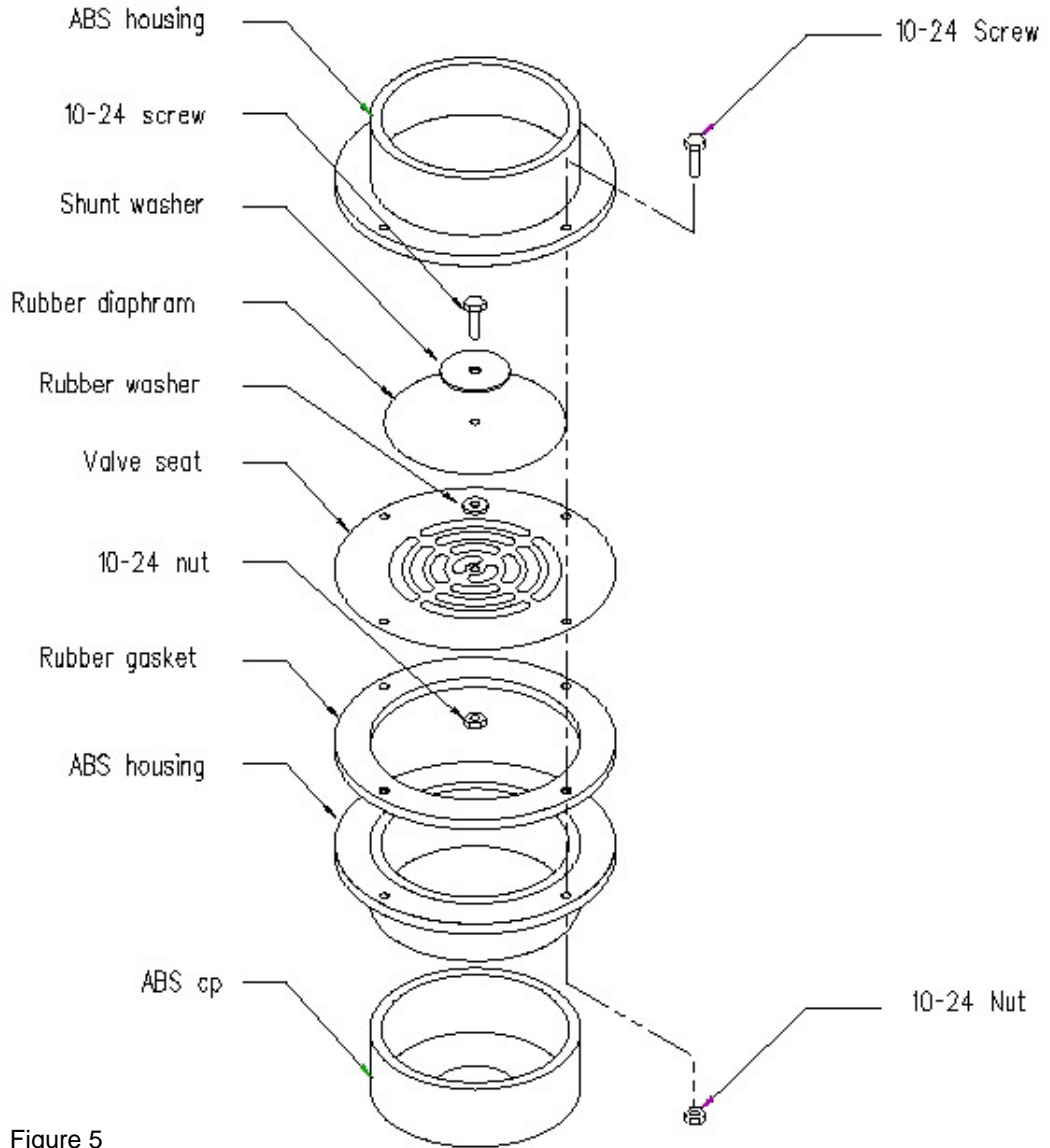


Figure 5
Exploded parts drawing
Overpressure Valve