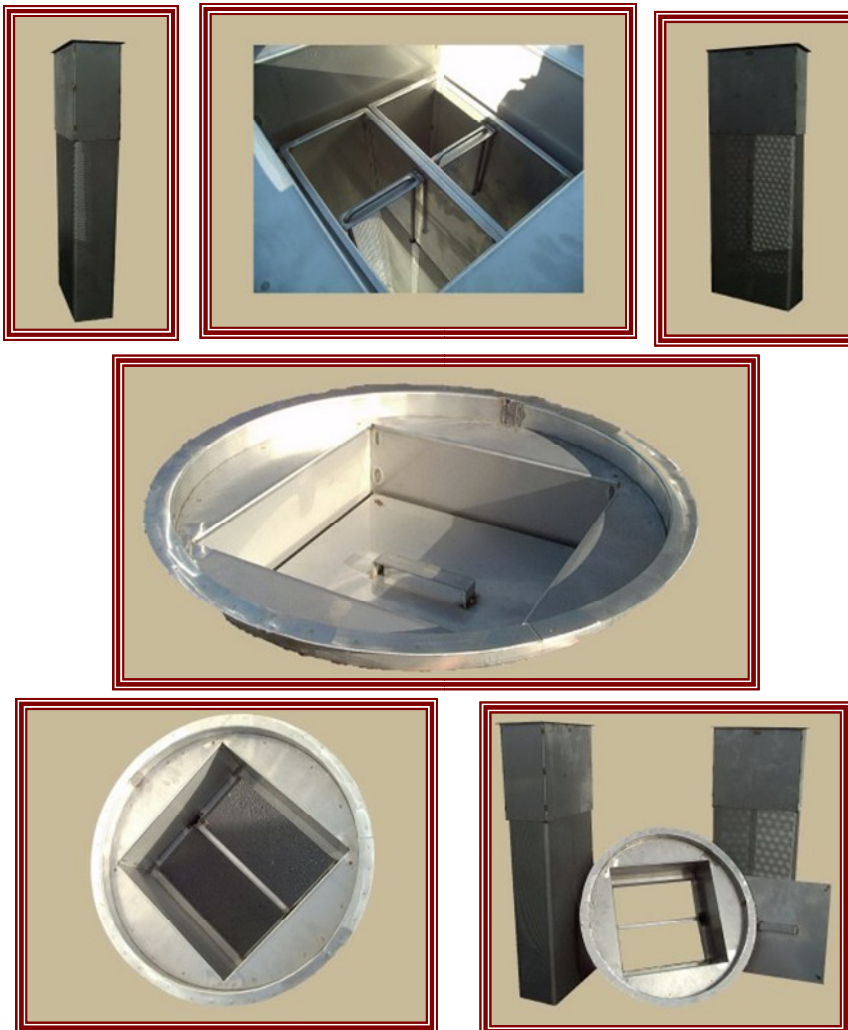


manhole
medic

Summer 2010

gas
buster

Manhole Medic™ & GasBuster Media



- Controls H₂S
- For wastewater
 - Pump Stations
 - Manholes
 - Air Relief Valves

**Odor Control System
Media and Equipment**

www.internationalvalve.com

International Valve Marketing, LLC

International Valve Marketing has been servicing and marketing advanced air valve technology to the North American market since 1996. In its tradition of innovation and providing solutions to its customers – municipalities, engineers and consultants – we have developed significant advancements in water and wastewater air relief valves and odor control technology.

With over 100 years of operating and technical experience, our management team understands its customer needs, in the field, where performance counts. Using our proprietary GasBuster media and ManHole Medic™ equipment, our odor control technology is second to none.

For your water and wastewater needs, our Customer Service and product offerings use a 'systems approach', providing benefits to water and wastewater customers through our product and service offerings, including:

- Site assessment and design support using “*Designed Air Passage Science*” (DAPS)
- Vent-Tech Combination Sewage Air Relief Valves (see separate product catalogue)
- Vent-Tech Combination Water Air Relief Valves:
- **Odor Control Treatment Technology** for removal of hydrogen sulfide (www.internationalvalve.com):
 - **GasBuster Media**
 - **ManHole Medic™ Equipment**
- Fiberglass “Drop-in-Place” assembled Valve Vaults
- Customer support 24/7 (815) 744-9330
- Local sales representation (www.internationalvalve.com)

International Valve is a family owned and operated business, serving your water and wastewater air relief valve needs. Whether your concern is surge, water hammer, leakage, premature valve closure, or air release - our pledge is to provide you with the right solution. First time. Every time.

International Valve Marketing, LLC
ManHole Medic™ & GasBuster
Odor Control System Introduction

International Valve Marketing specializes in the removal of hydrogen sulfide from air/gas streams commonly associated with the Wastewater Industry. International Valve Marketing combines a proprietary odor protection media with customized equipment capable of reducing hydrogen sulfide concentrations to less than .005%. Our equipment is ideally suited for installation at pump stations, in manholes and can be tied directly to the exit orifices of sewage air release valves.

The Manhole Medic™ is a non-mechanical, low maintenance solution to controlling escaping sewer gas odors. It is a proven, safe, and cost effective answer for elimination of annoying odorous and foul smelling air/gas problems that plague public areas such as sidewalks, streets and housing developments.

Manufactured of four corrosion resistant 304 Stainless Steel parts, the Manhole Medic™ provides a simple solution to a complex problem. The unit is resilient to the highest levels of acid gases. It has no moving parts making it virtually maintenance free, and is 100% quiet, making it truly neighborhood friendly.

At the heart of our system is the GasBuster odor controlling media. GasBuster is a proprietary blend of lightweight, non hazardous, organic and inorganic compounds (i.e., it is not activated carbon based). It is effective in partially humid environments up to 100% humidity. GasBuster media is capable of removing H₂S in concentrations up to 1,000 ppm with loading capacities up to 40% of its own weight.

For More Information

International Valve Marketing, LLC
2140 Maxim Drive
Rockdale, Illinois USA
60316
PH: 815-744-9330
FX: 815-744-9328
Sales@internationalvalve.com

International Valve Marketing, LLC

ManHole Medic™

System Components

The MANHOLE MEDIC™ is manufactured from 304 stainless steel solid and perforated sheet material. The upper retaining ring is profiled to allow sufficient flange length and strength to support the weight of the unit when installed. The initial recess serves to allow immediate clearance for the common tapered-bottom manhole covers generally in use. The second recess provides additional clearance towards the center.

Several key features are incorporated:

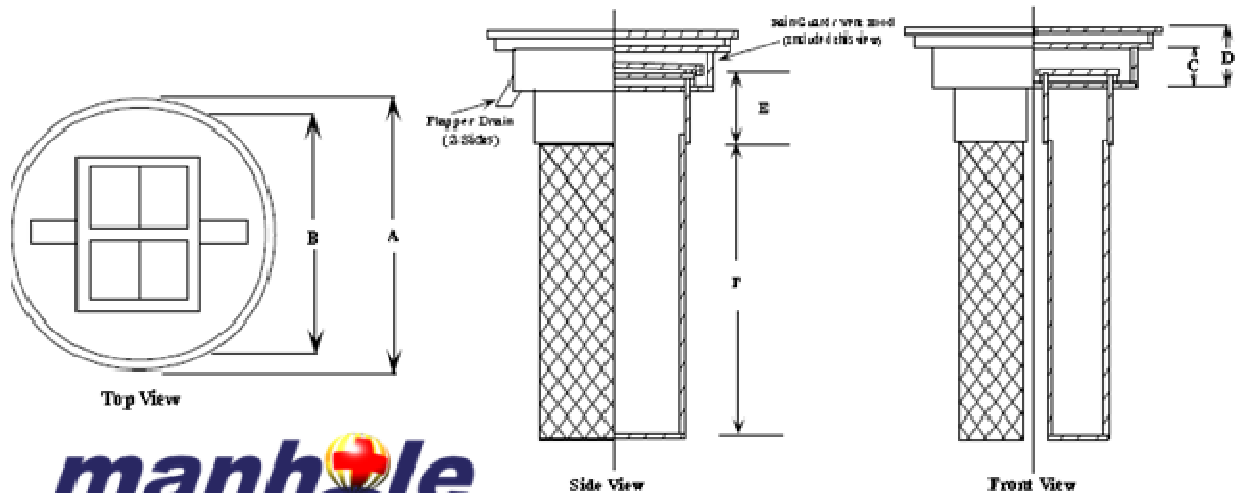
- 1) Rain Guard / Vent Hood - Tapered to direct incoming/overflow water run-off to an integrated peripheral drain channel, the over-sized Rain-Guard incorporates four (4) stand-off feet to provide adequate ventilation for the escaping clean air.
- 2) Two Flapper-Drains - Located on opposite sides of the Manhole Medic™ and connected via a peripheral drain channel, these drains serve to direct incoming/overflow water away from the active media and back into the manhole to protect and enhance media performance and longevity.

Two cartridge type media baskets are included in a complete unit. Each has a retractable lifting handle for easy, light weight installation and removal. The upper portion, called the "apron" is manufactured from solid 304 stainless steel to ensure contact time between the H₂S-rich air and the cleansing Gas-Buster™ filtration media. The lower portion is manufactured from 51% open-air perforated 304 stainless steel sheet material. When fully loaded and operating the tested pressure-drop is less than one (1). The bottom panel of each media basket is also perforated to prevent fluid build-up and Gas-Buster™ media degradation.

Dimensions and cross-sections are shown on the following page.

ManHole Medic™
Material Specifications

Dimensions

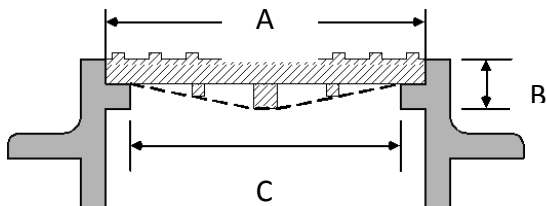


*gas
buster*

Dimensional Specifications

	Man Hole O. D.	A	B	C	D	E	F
MHI-230	23.5"	23"	21.5"	8"	9.5"	8"	28"
MHI-235	24"	23.5"	22"	8"	9.5"	8"	28"
MHI-235-18	24"	23.5"	22"			8"	30"
MHI-255	26"	25.5"	23"	8"	9.5"	8"	28"
MHI-295	30"	29.5"	27"	8"	9.5"	8"	28"
MHI-305	31"	30.5"	29"	8"	9.5"	8"	28"
MHI-310	31.5"	31"	29.5"	8"	9.5"	8"	28"
MHI-315	32"	31.5"	30"	8"	9.5"	8"	28"
MHI-355	36"	35.5"	33"	8"	9.5"	8"	28"
MHI-370	38.5"	37"	35.5"	8"	9.5"	8"	28"
MHI-385	39"	38.5"	36"	8"	9.5"	8"	28"

Sizing

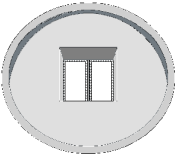
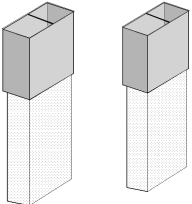
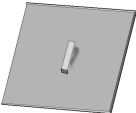
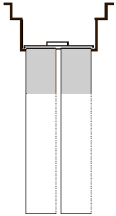



These dimensions are critical for proper fit of your *ManHole Medic*.

- A** Inside diameter.
- B** Total height/thickness of man hole lid.
- C** The smallest, inside dimension of the man hole entrance.

Material Specifications

Construction Materials, Specifications and Weight

	Item	Construction	Specifications	Weight
	Basket Retaining Ring	304SS	Two flapper valve water drains. Holds two Media Baskets. All sizes available. Weight varies as per size.	18 Lbs.
	Media Basket (Two Required)	Upper Solid 304SS — Lower Perforated 304SS	12" x 5-1/2" x 34" Each basket holds 1.3 cubes of Gas-Buster Media Lifting handle Gasketed Basket Rim Shorter baskets available.	11 Lbs. each
	Rain Guard/Vent Hood	304SS with Drip Cap Vent Feet	14" x 14" Designed to protect Gas-Buster Media from rain run-off. Allows escaping cleansed air to enter atmosphere.	2 Lbs.
	Complete Unit	All 304SS 2 Media Baskets Retaining Ring Rain Guard	Includes: 1 Retaining Ring 2 Media Baskets 1 Rain Guard 4 Five-gallon pails of Gas-Buster Media Wire prep brush to clean manhole rim	42 Lbs. 162 Lbs. 136 Lbs.
	Gas-Buster Media	5 Gal. Plastic Pail	Proprietary and Patented Gas-Buster Media .83 Cubes per pail	30 Lbs. Per Pail

Individual Replacement Parts Available

International Valve Marketing, LLC
ManHole Medic™
Installation

Easy Installation

Installation is easy using the following instructions.

1. Install the Basket Retaining Ring

Each unit comes equipped with a wire brush. Remove existing manhole cover and clean manhole frame retaining rim with the wire brush. Depending upon the condition of the manhole rim, caulking may be needed to insure a proper seal. A silicone based caulk is recommended.

2. Fill Media & Insert Baskets

Fill each Media Basket with one pail of Gas-Buster Media. Add Media in small quantities. Do not to compress media. Insert Media Baskets into Basket Retaining Ring. Use remaining Media to fill within ½ inch of the top of the Media Basket. Save any unused Media for step 4.

3. Clean Rain Channel & Install Rain Cover

Remove any Gas-Buster Media that may have fallen into the rain channel when filling Media Baskets. Place Rain Guard/ Vent Hood over the Media Baskets.

4. Replace Manhole Cover & Inspect

Once the Rain Guard/Vent Hood has been installed the unit is complete. Replace manhole cover. It is not uncommon that the Gas-Buster Media settles over time. It is recommended that the unit be checked 30 days after installation. Add remaining media as needed. Do not overfill.

Contract Specifications

Specification for Odor Control Technologies, Inc. ManHole Medic™ Manhole Inserts

1. SCOPE

- 1.1. Contractor shall furnish an INTERNATIONAL VALVE MARKETING (IVM) MANHOLE MEDIC™ manhole insert as called for in the specification.
- 1.2. The IVM MANHOLE MEDIC™ manhole insert shall effectively reduce or prevent odors from being emitted through manhole covers. The system shall rely upon an adsorption media with a reactive capacity to adsorb H₂S in concentrations up to 1,000 ppm with a loading capacity in excess of 40% of its own weight. The odor-controlling media shall be lightweight, non-hazardous, landfill disposable, and shall be unaffected by extreme humidity, moisture, or occasional flooding. The odor-controlling media shall have passed the California Title 22 Metals Analysis, Calwet Extraction Test, Fish and Shrimp Bioassay Test for Toxicity, and EPS Toxic Characteristics Leaching Procedure (TCLP). Manhole inserts containing activated carbon will not be considered.
- 1.3. IVM MANHOLE MEDIC™ manhole insert shall be manufactured by Odor Control Technologies, Inc. P.O. Box 881, St. Charles, IL 60174 1 (866) 427-2878

2. MATERIALS AND DESIGN

- 2.1. All parts of the IVM MANHOLE MEDIC™ manhole insert that are in contact with the contaminating H₂S compounds shall be manufactured from corrosion resistant materials suitable for atmospheres and conditions commonly found in wastewater collection systems.
- 2.2. IVM MANHOLE MEDIC™ manhole insert shall consist of 1 (One) basket retaining ring, 1 (One) Rain Guard / Vent Hood, 2 (Two) cartridge type odor-controlling media basket filters, and 4 (Four) pails of odor-controlling media.
- 2.3. The IVM MANHOLE MEDIC™ basket retaining ring shall be manufactured from 304 Stainless Steel. The basket retaining-ring shall be profiled to provide sufficient flange length and strength to support the weight of a fully assembled unit when suspended from the manhole frame rim and provide a stable supporting surface for the manhole cover. The initial recess of the flange profile shall provide immediate clearance for the common tapered-bottom manhole covers in general use. A second recess within the flange profile shall provide additional clearance towards the center of the assembly.
- 2.4. The IVM MANHOLE MEDIC™ basket retaining ring shall incorporate two drains located on opposing sides and shall be connected via a peripheral drain channel. The drains shall serve to direct incoming/overflow water away from the odor-controlling media and into the manhole to protect and enhance the odor-controlling media performance and longevity. The drains shall not allow H₂S to be emitted to atmosphere.

Contract Specifications

- 2.5. The IVM MANHOLE MEDIC™ basket retaining ring shall accommodate a Rain Guard / Vent Hood. The Rain Guard / Vent Hood shall be manufactured from 304 Stainless Steel and shall be tapered to direct incoming / overflow water run-off to an integrated peripheral drain channel and provide for adequate ventilation for the escaping cleansed air.
- 2.6. The IVM MANHOLE MEDIC™ media basket filters shall consist of an upper and lower portion and shall have a retractable lifting handle for easy, light weight installation and removal. The upper portion, called the apron, shall be manufactured from solid 304 Stainless Steel of sufficient height to ensure adequate contact time between the H₂S-rich contaminated air and the odor-controlling filtration media. The lower portion shall be manufactured from 51% open-air perforated 304 Stainless Steel.
- 2.7. The IVM MANHOLE MEDIC™ odor controlling media shall meet the requirements specified in section 1.2 of this document.
- 2.8. The IVM MANHOLE MEDIC™ manhole insert shall provide a mechanism to prevent fluid build-up within the assembled unit and when fully loaded and installed shall operate with a pressure drop tested at less than 1 (One) inch of water column.

3. MEASUREMENTS

- 3.1. The IVM MANHOLE MEDIC™ manhole insert shall be manufactured to fit the manhole frame rim upon which the manhole rests. Exact measurements shall be provided by the purchaser.
- 3.2. Instructions and measuring diagrams will be made available to the purchaser, upon such request, to ensure a proper fit of the IVM MANHOLE MEDIC™ manhole insert within the manhole frame.

4. INSTALLATION

- 4.1. The manhole frame rim shall be cleaned of all dirt and debris before placing the IVM MANHOLE MEDIC™ manhole insert upon the rim. A wire brush shall be included upon request.
- 4.2. The IVM MANHOLE MEDIC™ manhole insert shall be fully seated around the manhole frame rim.
- 4.3. Fill each media basket filter with IVM odor-controlling media. Load media in small quantities. Take care not to compress the media material.
- 4.4. Insert media basket filters into basket retaining ring.
- 4.5. Use remaining media to fill to within 1 (One) inch of the top of the media basket. Save any unused media for step 4.8
- 4.6. Remove any odor-controlling media that may have fallen into the peripheral drain channel.

Contract Specifications

- 4.7. Place Rain Guard / Vent Hood over the media baskets.
- 4.8. Replace the manhole cover. The odor –controlling media may settle. It is recommended that the unit be checked 30 days after installation. Add remaining odor-controlling media as needed. Do not overfill.

5. OPERATION AND MAINTENANCE

- 5.1. The IVM MANHOLE MEDIC™ manhole insert operates automatically and is essentially maintenance free
- 5.2. The odor-controlling media needs to be exchanged when odors recur.

6. ACCEPTANCE

- 6.1. Completed installations must meet engineer's approval.

International Valve Marketing, LLC

GasBuster Media General Information

International Valve Marketing, LLC specializes in the removal of hydrogen sulfide from air/gas streams commonly associated with the Wastewater Industry. Odor Control Technologies, Inc. combines a patented odor protection media with customized equipment capable of reducing hydrogen sulfide concentrations to less than .005%. Our equipment is ideally suited for installation at pump stations, in manholes and can be tied directly to the exit orifices of sewage air release valves.

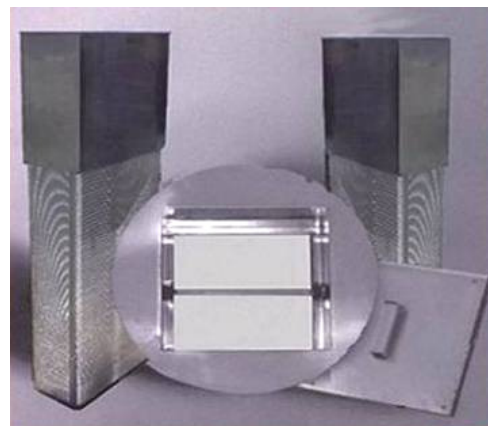
The heart of our odor controlling systems is our GasBuster media. The media begins as a safe and stable compound. It is a proprietary blending of non-activated carbon based, organic and inorganic reactive compounds capable of removing H₂S in concentrations up to 1,000 ppm with an unprecedented reactive capacity up to 40% of its own weight. Every 100 pounds of GasBuster Media has the ability to capture 40 pounds of hydrogen sulfide. Unlike carbon and carbon based absorption products, humidity, direct moisture and occasional flooding do not adversely affect our patented GasBuster media.

The resultant or spent material has passed every stringent environmental test and EPA regulation, including: California's Title 22 Metals Analysis, Calwet Extraction Test, Fish and Shrimp Bioassay Test for Toxicity, and the EPA Toxic Characteristics Leaching Procedure (TCLP).

Spent GasBuster media can be placed in a non-hazardous landfill or buried on site where permitted by local ordinances. The GasBuster media reactant is non-hazardous, non-pyrophoric and environmentally safe in both original and ready for disposal form.

The GasBuster material is a semi-dry, free flowing mulch material impregnated with iron sulfite in a patented process. GasBuster media removes hydrogen sulfide and light mercaptans in humid air/gas streams containing free oxygen.

International Valve Marketing, LLC has designed systems for above or below grade installation. This includes building and manhole applications. Units can be installed in a static or forced air/gas configuration. Systems are available in a variety of standard models. Custom units are also available



GasBuster

Q & A

What is GasBuster Media?

Gas Buster is a patented odor protection system. It is typically used at air release valves, pump stations, sludge and wastewater collection systems and manholes. Anywhere Hydrogen Sulfide is present, GasBuster can be used to cleanse the air/gas.

How Does It Work?

GasBuster is a safe and stable compound of proprietary organic and inorganic odor reactive compounds. It has an unprecedented reactive capacity of 40% its own weight. Humidity, moisture and occasional flooding do not adversely affect its performance. It works wet or dry.

Is It Safe?

The resultant or used GasBuster Media has passed every stringent environmental test and IPA regulation, including: California's Title 22 Metals Analysis, Calwet Extraction Test, Fish and Shrimp Bioassay Test for toxicity, and the EPA Toxic Characteristics Leaching Procedure (TCLP).

How Is It Disposed Of?

Spent reactant can be placed in a non-hazardous landfill or buried on-site where permitted by local ordinance. GasBuster media is non-hazardous, non-pyrophoric, and environmentally safe in both its original and ready for disposal form.

What is the Reactant?

The GasBuster reactant is a semi-dry, free flowing mulch material impregnated with iron sulfite and proprietary materials in a patented process. GasBuster removes Hydrogen Sulfide and mercaptans in humid gas streams containing free oxygen.

Where Can It Be Used?

GasBuster Odor Controlling Systems are designed for above or below ground installations. Units can be installed in static or forced air/gas configurations. There are standard and custom systems. No matter what hydrogen sulfide odor situation exists, Odor Control Technologies, Inc. can design the system.

**GasBuster
Benefits**

GasBuster Media

Comparison of GasBuster to Activated Carbon Specifications

	GasBuster	Carbon
Land disposal restrictions	No	Yes
Is spent reactant hazardous?	No	Yes
Weight Per Cu. Ft.	36 pounds	36 pounds (ave.)
H2S Capacity per 100#'s of Reactant	40pounds	3 to 5 pounds
Is performance reduced when wet	No	50%
Can media life expectancy be forecast?	Yes	Yes
Average Cost per Pound	\$2.75	\$5.75

Additional Benefits

Easy Media Replacement

Needs No Monitoring

Less Expensive than Carbon

Meets Rigorous Environmental Standards

Easy Handling & Easy Storage

No Operator Required/Unattended Operation

GasBuster odor control systems consist of reaction vessels, either passive or controlled forced air, operating in an up-flow mode. Vessel installations include, but are not limited to: manholes, valve chambers, pump stations and wet wells.



International Valve Marketing, LLC
2140 Maxim Drive

www.internationalvalve.com

Rockdale, Illinois USA
60136

PH: 815-744-9330

FX: 815-744-9328

Sales@internationalvalve.com