VENT-O-MAT®

SERIES RGXII

SEWAGE AIR RELEASE &VACUUM BREAK VALVES

OWNER'S MANUAL

Name:

Company: **Department:**

Address:

Tel: **Fax:**

Project:

Sewage Air Valve Details:

VENT-O-MAT®

SERIES RGX "ANTI-SURGE" SEWAGE AIR VALVE

OWNER'S MANUAL

INTRODUCTION

Thank you for your purchase of the Vent-O-Mat series RGX "Anti-Surge" sewage air valve. This air valve design is the culmination of years of intensive research, innovative design and leading edge technology.

The Vent-O-Mat series RGX sewage air valve has transcended the line of being a mere air valve or surge alleviation mechanism as it represents more than just the combination of these functions. In fact, it is best described as a cost effective pipeline management system incorporating the features of a double acting sewage air valve and surge alleviation device.

This manual is intended to provide the project engineer, contractor and end user with a useful guide on how best to install operate, maintain and maximise the performance of the Vent-O-Mat series RGX sewage air valve. Included are comments on sewage air valve sizing and positioning, Vent-O-Mat testing procedures and useful technical data.

Note this document is specifically directed at the use of Vent-O-Mat series RGX sewage air valves and is not intended as a comprehensive pipeline design guide or system engineering manual.

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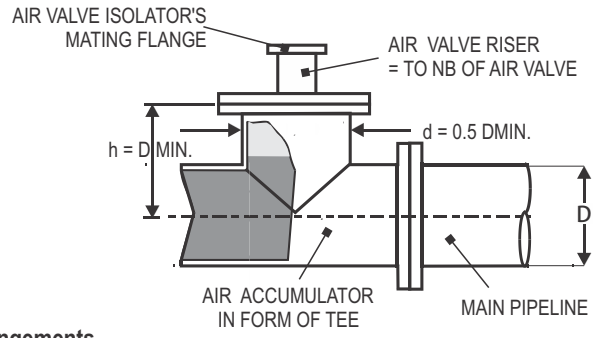
RECOMMENDED INSTALLATION PROCEDURES

Air Accumulators

It is common practice amongst some design engineers to place an air valve on a riser welded directly onto the main pipeline. This method however leads to inefficient air valve operation and restrictions in the main pipeline as air that is taken in under vacuum conditions will be swept away when the pumps are restarted. It is good pipeline design practice, to provide an accumulator, as indicated below for every air valve, to facilitate efficient air valve operation.

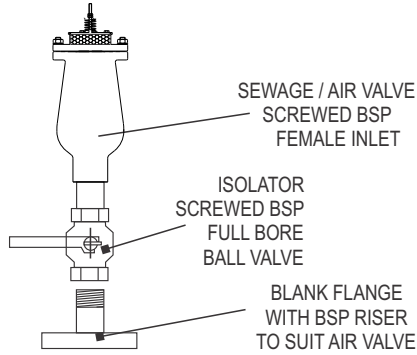


Isolator Arrangements

Every air valve installed, should have an isolator installed directly underneath it to allow the removal of the air valve in case of repairs. Indicated on the enclosed diagrams are Vent-O-Mat's recommended installation arrangements.

Arrangements 1

Specific to DN50 Vent-O-Mat Series RGXII screwed valves.

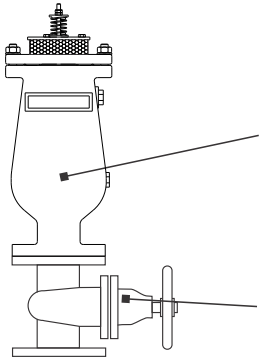


Arrangement 1

Arrangement 2

Specific to DN50(2") Dn80 (3"),100(4"),150(6") and 200(8") valves - Recommended for valves where Height and access to the valve is not a problem. Either a Wedge Gate or a Resilient Seal Valve can be utilised.

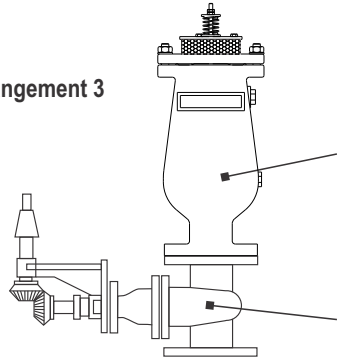
Arrangement 2



Arrangement 3

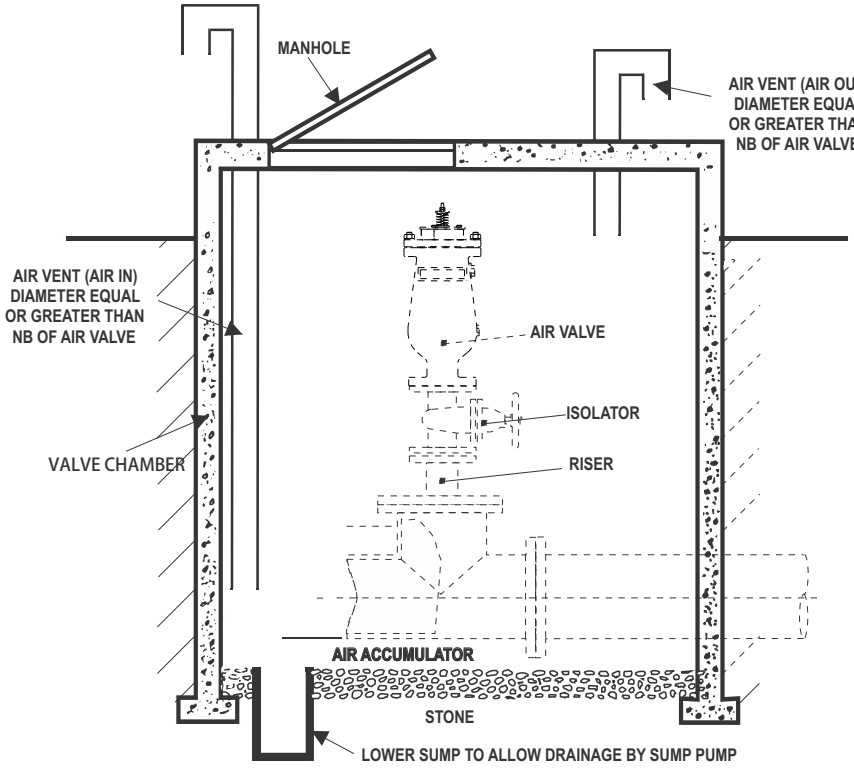
Specific to DN50(2"), DN80(3"), 100(4"),150(6") and 200(8") valves - Recommended for valves installed inside a valve chamber, to be operated by a tee key.

Arrangement 3



Air Valve Chamber Design

A well designed air valve chamber is important and should be designed with easy access to the valve for installation and subsequent maintenance. Good support is required in the case of chamber settling. It is a common practice to place a layer of stone underneath the pipe for drainage purposes. Two vents should also be installed, in the manner indicated on the opposite page to allow free and constant air circulation.



AIR VALVE CHAMBER

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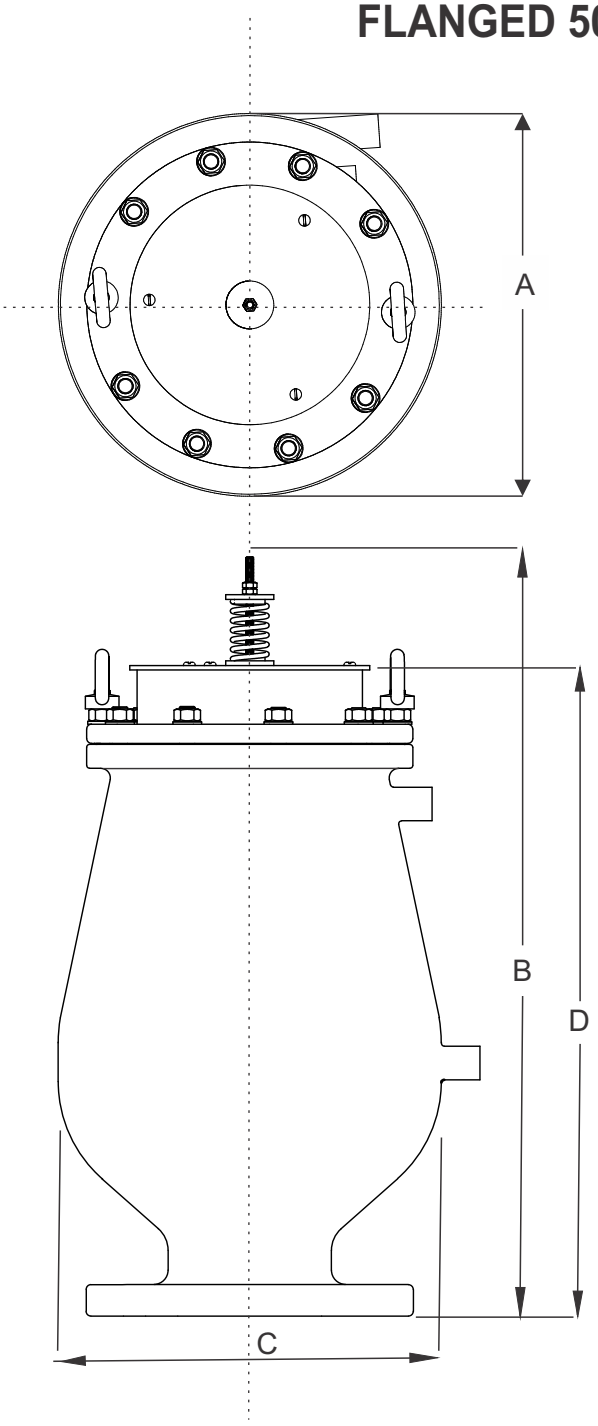
GENERAL SPECIFICATIONS
FLANGED 50 (2") TO 200 (8")



Type:
Double Orifice (Small & Large Orifice) with Bias mechanism for large volume air intake and controlled air discharge.

End Connection:
Flanged to Alignment:
Male NPT
ANSI B16.5 Class 150

Nominal Sizes:
DN50 (2"), DN80 (3"), DN100 (4"), DN150 (6") & DN200 (8")

Model No's:	Pressure Ratings - bar (psi):
RGXII	PN16 (232 psi)

Operating Pressure Range - Bar (psi):

	Min	Max.
PN16 (232 psi)	0.2 (3 psi)	16 (232)

Function:
i) High volume air intake - pipeline draining
ii) Pressurized air/gas discharge - pipeline filled.
iii) Controlled air discharge - pipeline filling.
iv) Surge dampening - high velocity air/gas discharge, liquid column separation & liquid oscillation.

Valve Selection:- Page 9

Materials of Construction:- Page 5

Installation:- Page 2

Standard Factory Tests:
I) Hydrostatic test -1.5 x max. rated working pressure
ii) Low head leak test - 0.2 bar (3 psi) Static
iii) Small orifice function test at max. rated working pressure (minimum 1 valve in 10).

OVERALL DIMENSIONS & WEIGHTS

DN		Model No.	A		B		C		D		Weight Cast		Weight S/S	
mm	in		mm	in	mm	in	mm	in	mm	in	kg	lbs	kg	lbs
50	2	050 RGXII1621 & 1641	174	6.85	413	16.26	155	6.10	363	14.29	16	35.27	13	28.66
80	3	080 RGXII1641	230	9.06	640	25.20	273	10.75	546	21.50	40	88.18	30	66.14
100	4	100 RGXII1641	230	9.06	645	25.39	273	10.75	546	21.50	40	88.18	30	66.14
150	6	150 RGXII1641	340	13.39	772	30.39	400	15.75	680	26.77	70	154.32	60	132.28
200	8	200 RGXII1641	355	13.98	940	37.01	526	20.71	846	33.31	115	253.53	80	176.37

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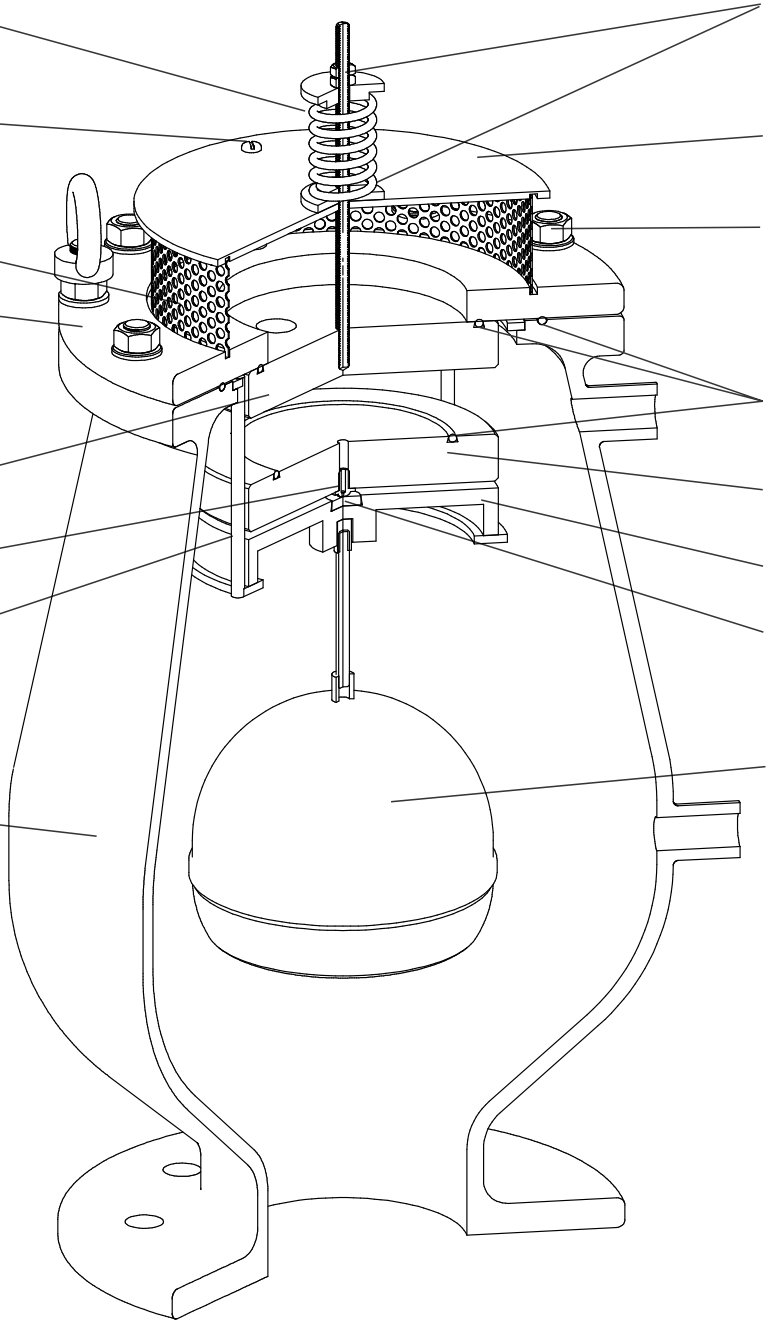
COMPONENT DESCRIPTION & MATERIAL SPECIFICATION
FLANGED - DN50(2") - DN200(8")

Type:
Series RGXII - Double Orifice (Small & Large Orifice) with Anti Shock Orifice Mechanism.

End Connection:
Flanged

Nominal Sizes:	Model No's:	Pressure Ratings:
DN50(2") - DN200(8")	RGXII	16 Bar (232 psi)



Bias Spring
Stainless Steel AISI 304

Top Cover Hex Bolt
Stainless Steel AISI 304

Screen Mesh
Stainless Steel AISI 316

Top Flange
Fusion Bonded
Epoxy Powder Coated
Ductile Cast Iron
ASTM A536 Gr 65-45-12
Alternatively Stainless Steel
AISI 304 or 316

Anti-Surge Orifice Float
High Density Polyethylene

Nozzle
Stainless Steel AISI 316

Float Cage
Stainless Steel AISI 316

Body
Fusion Bonded
Epoxy Powder Coated
Ductile Cast Iron
ASTM A536 Gr 65-45-12
Alternatively Stainless Steel
AISI 304 or 316

Locating Lugs
Stainless Steel AISI 304

Top Cover
Stainless Steel AISI 316

Studs, Nuts and Washers
Stainless Steel AISI 316

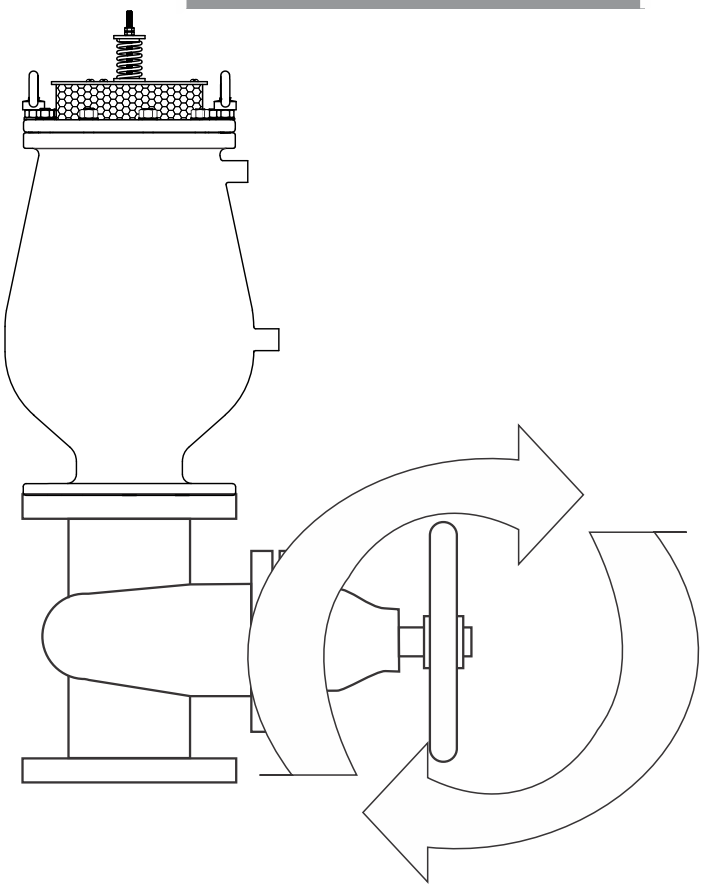
O-Ring Seal
EPDM Rubber

Top Float
High Density Polyetheylene

Lower Float
High Density Polyetheylene

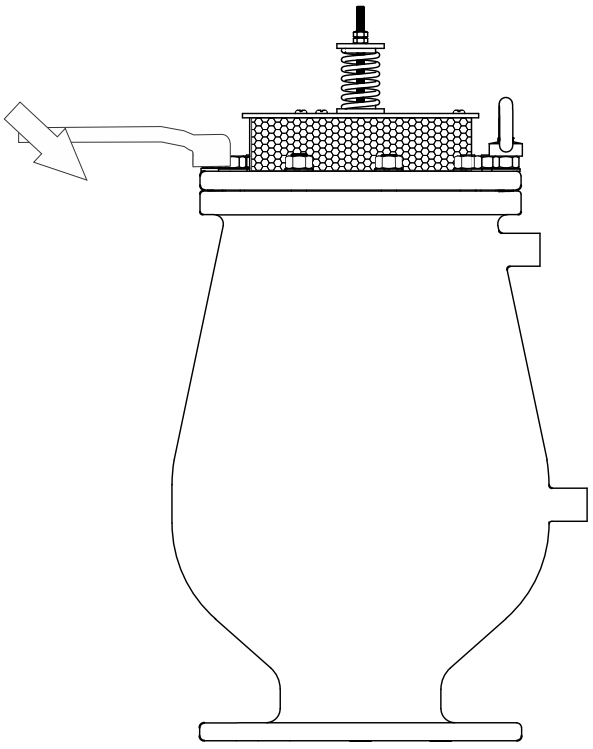
Nozzle Seat
EPDM Rubber

Lower Float Assembly
Stainless Steel AISI 316



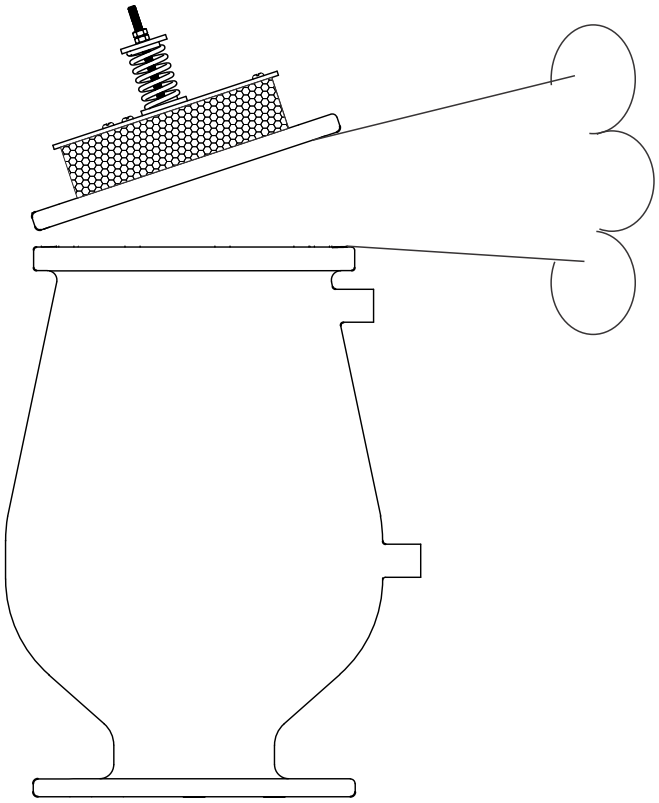
Step 1 Isolate Air Valve

Before doing any maintenance on any air valve make sure it's properly isolated from the pipeline



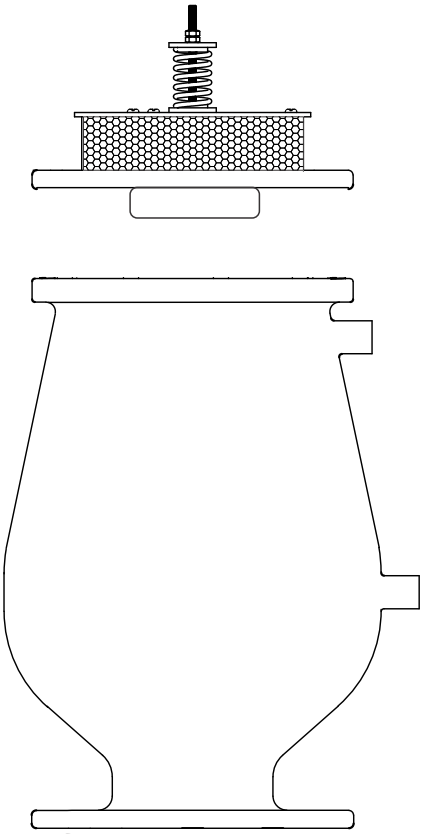
Step 2 Loosen bolts

loosen bolts on top flange



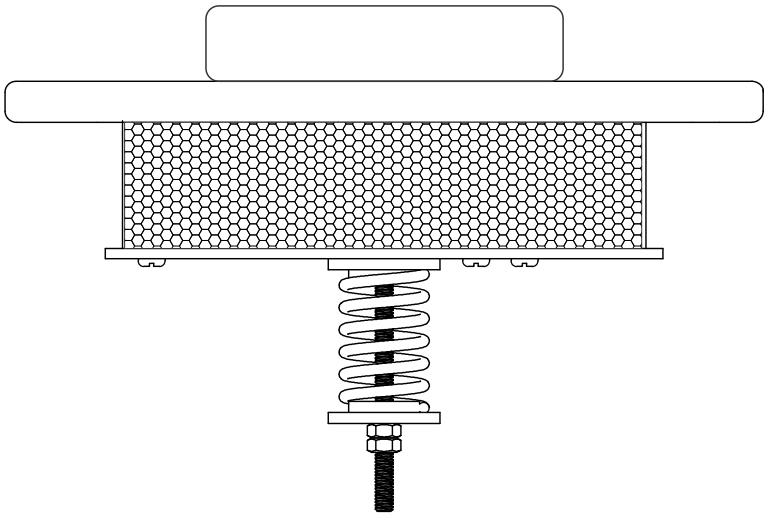
Step 3 release any residual pressure

When opening th valve tilt up the flange facing away from any personnel to release any residual trapped pressure that may be in the body of the valve.



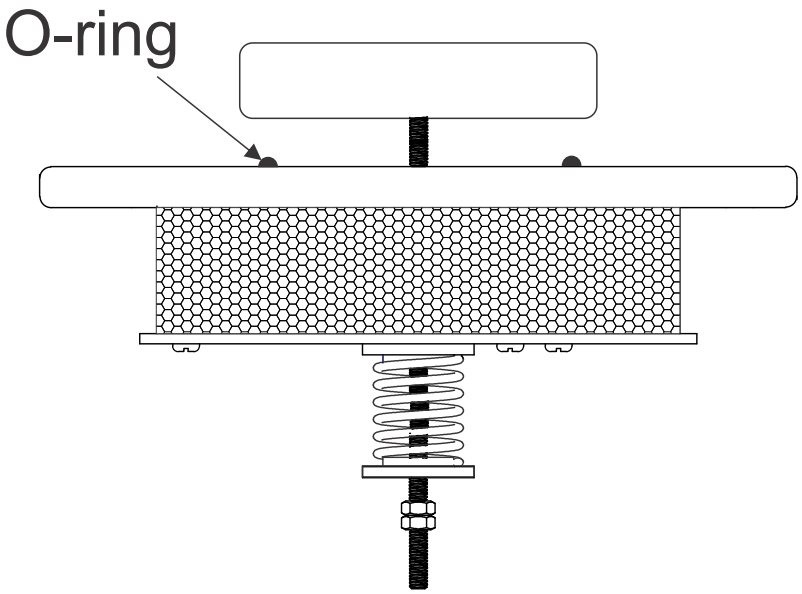
Step 4 Remove top flange

LIft the top flange assembly from the valve



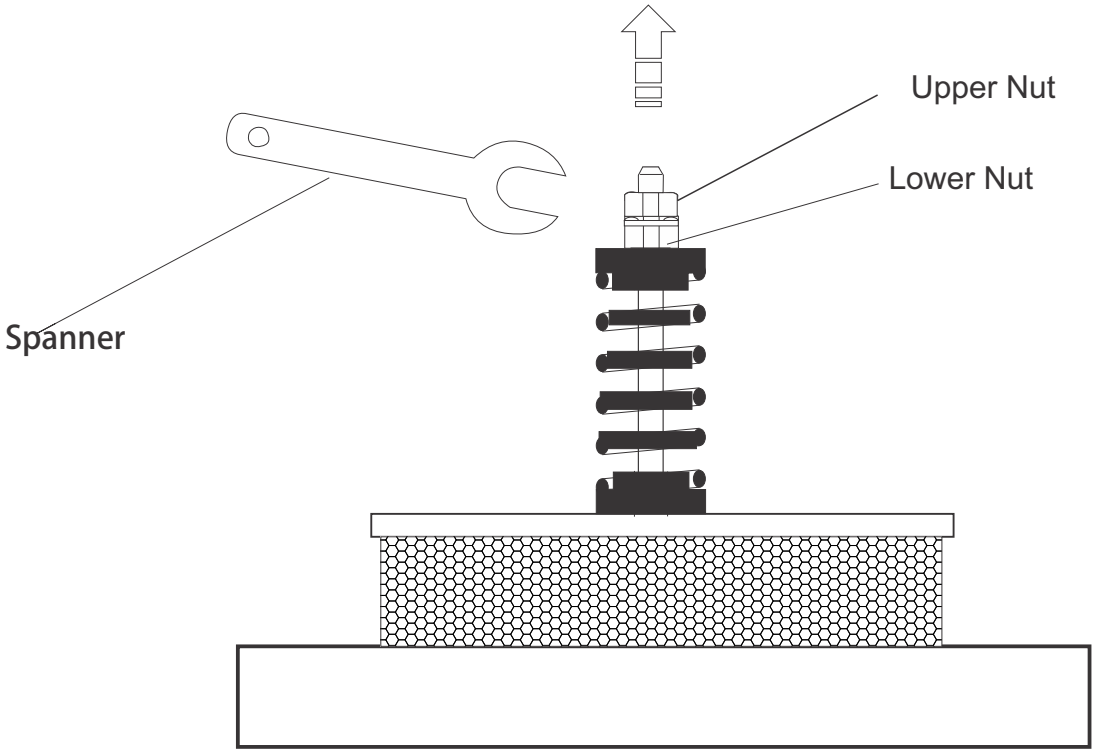
Step 5: Flip top flange Assembly

Take the top flange off and flip it so the “Anti shock is visible and examine the surface of the “Anti-Shock” floar for damage.



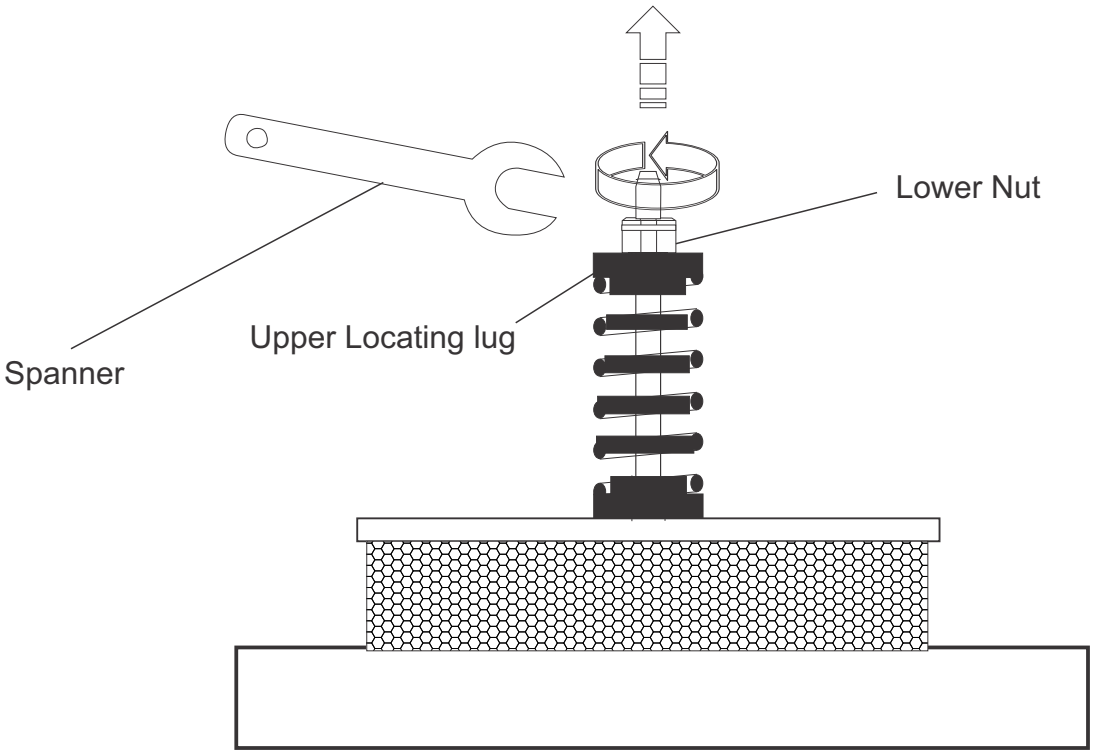
Step 6: Check “Anti-Shock Float o-Ring

Compress spring carefully and check the integrity of the O-ring in the top flange. If the o-ring is damaged then follow steps 7 to 15 <u>if O-ring is fine skip theses steps</u> and resume at step 16



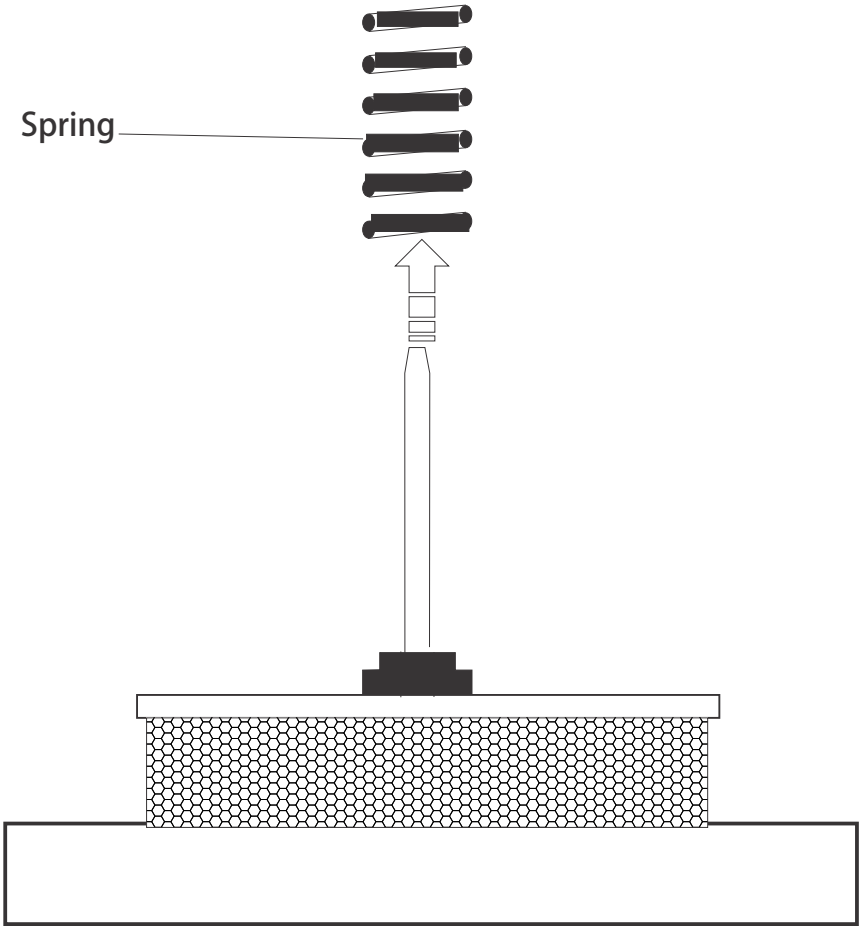
Step 7: Remove upper nut

Remove the upper nut using a spanner

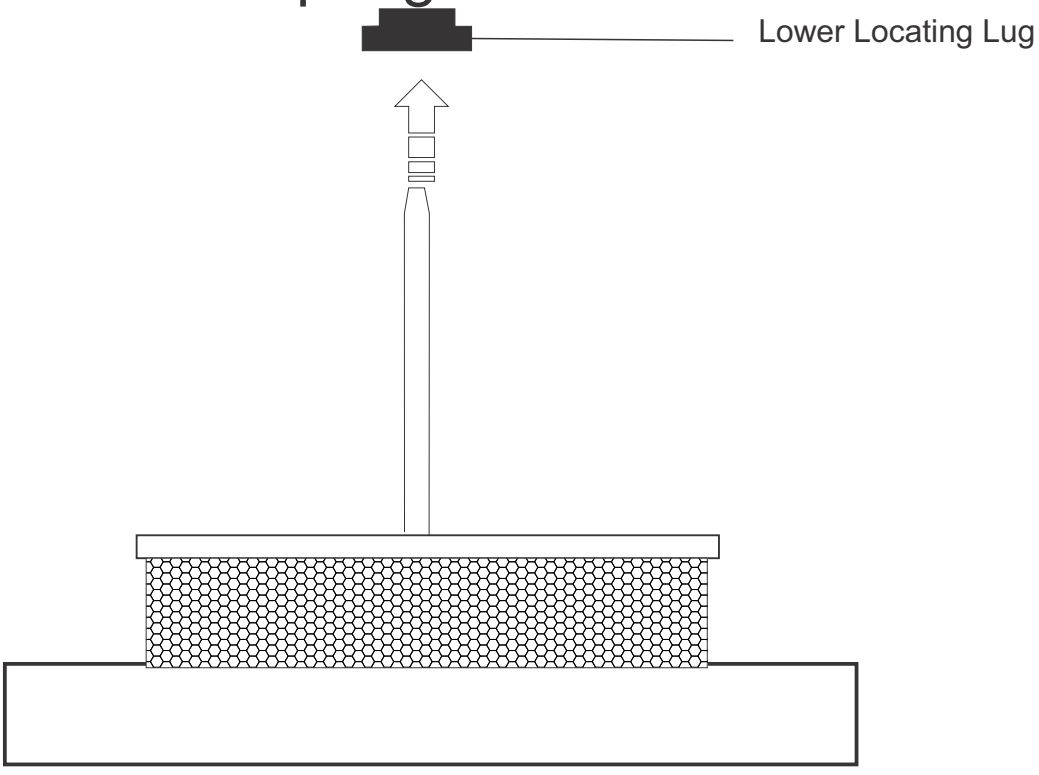


Step 8: Remove lower nut and upper locating lug

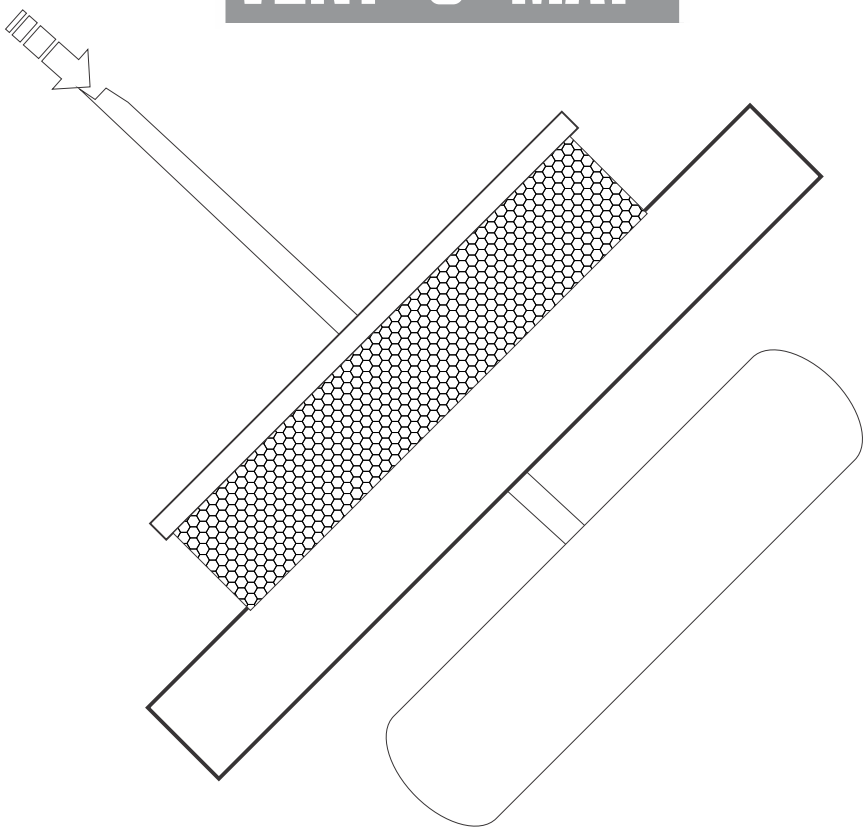
Using a spanner remove the lower nut and then remove the locating lug



Step 9: Remove Spring

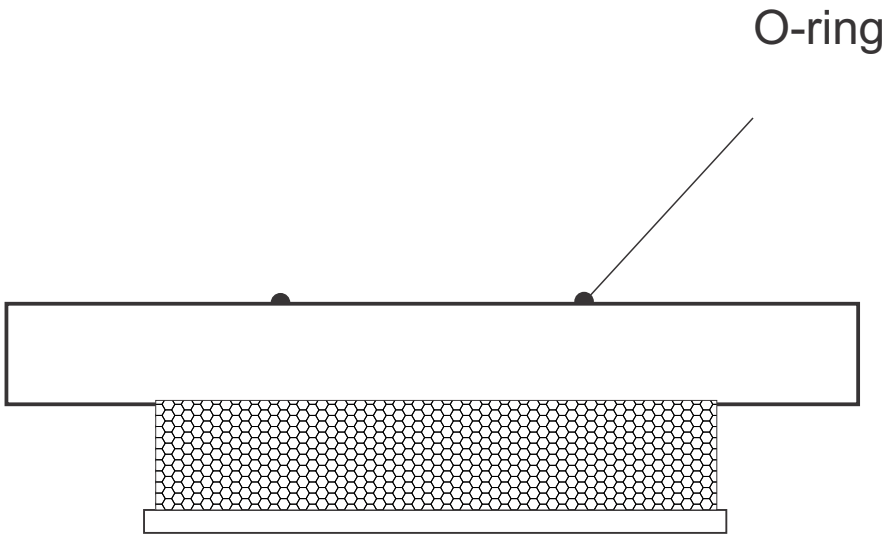


Step 10: Remove lower locating lug



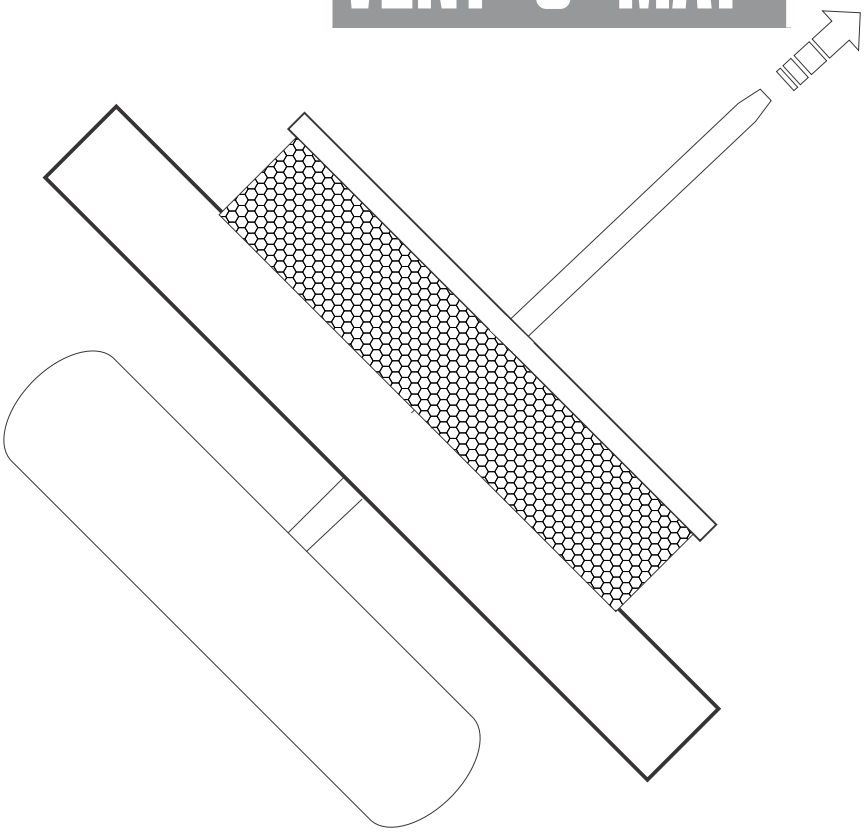
Step 11: Remove “Anti-Shock” Float Assembly

Remove “Anti-Shock” Float Assembly by removing rod from top cap



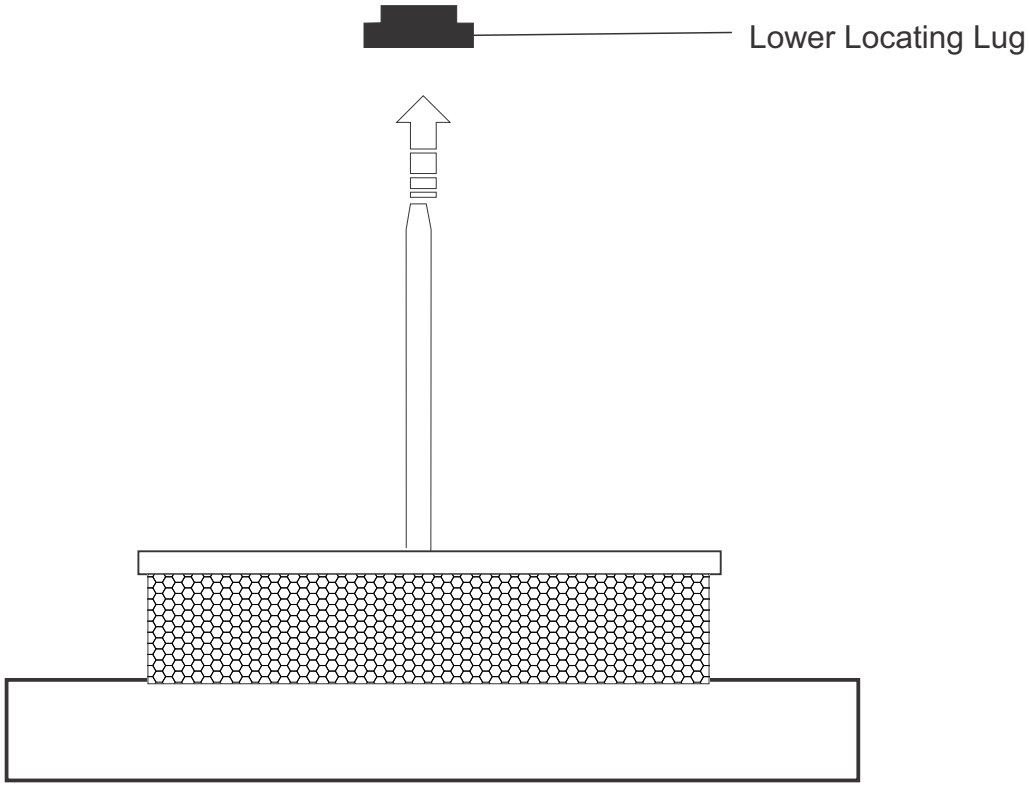
Step 12: Check and replace O-ring

Reevaluate that the o-ring does need replacing and then replace

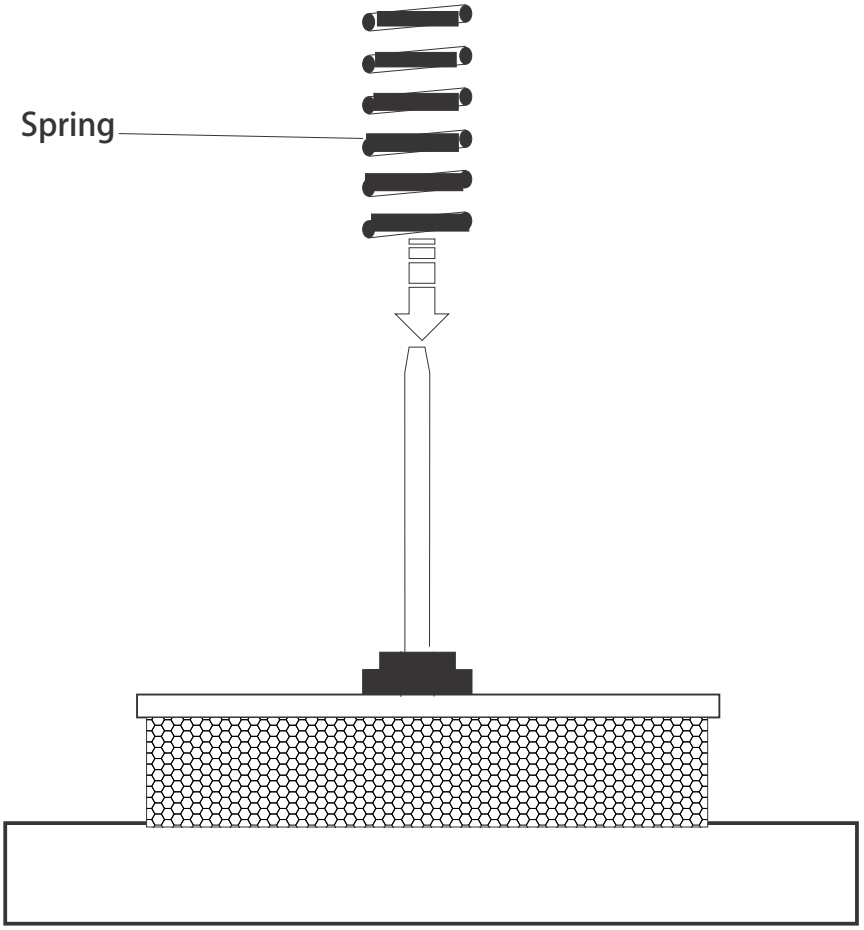


Step 13: Replace “Anti-Shock” Float Assembly

Replace “Anti-Shock” Float Assembly by sliding rod from through hole in top cap

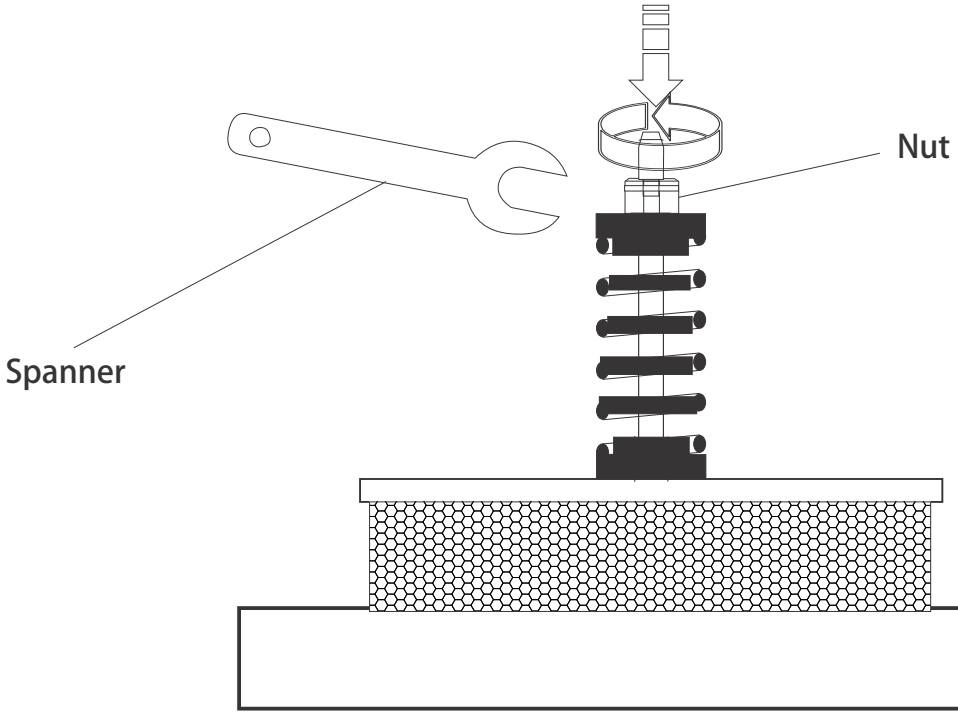


Step 14: Replace Lower Locating Lug



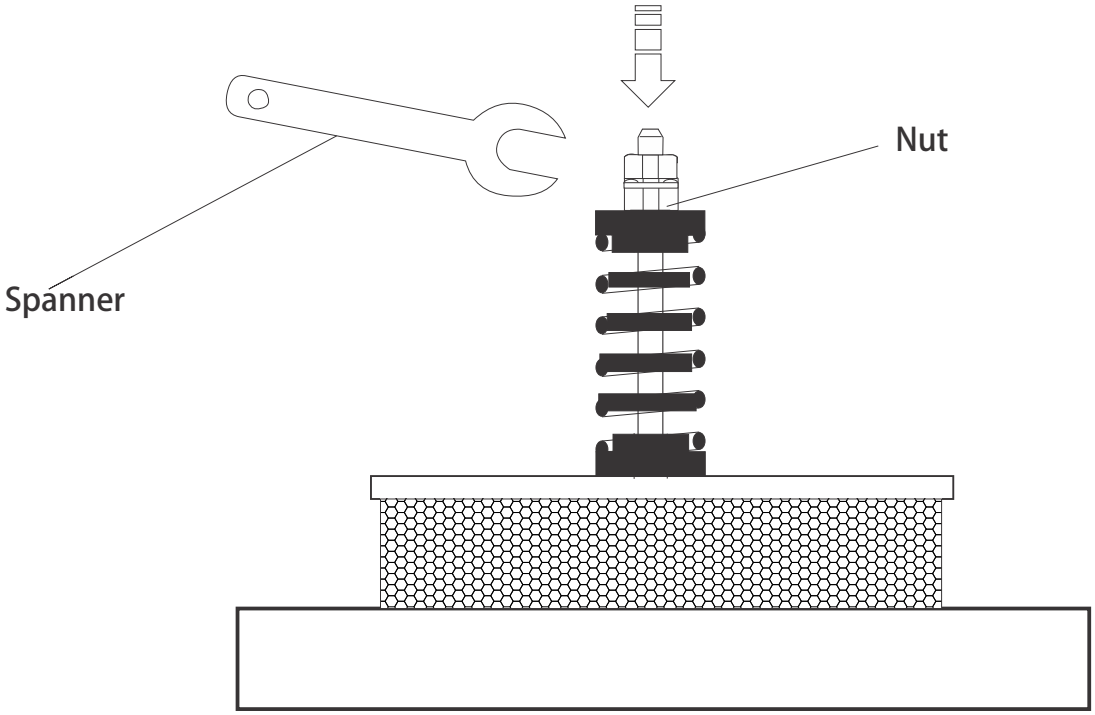
Step 15: Replace Spring

Replace spring making sure that the spring sits securely into the lower locating lug



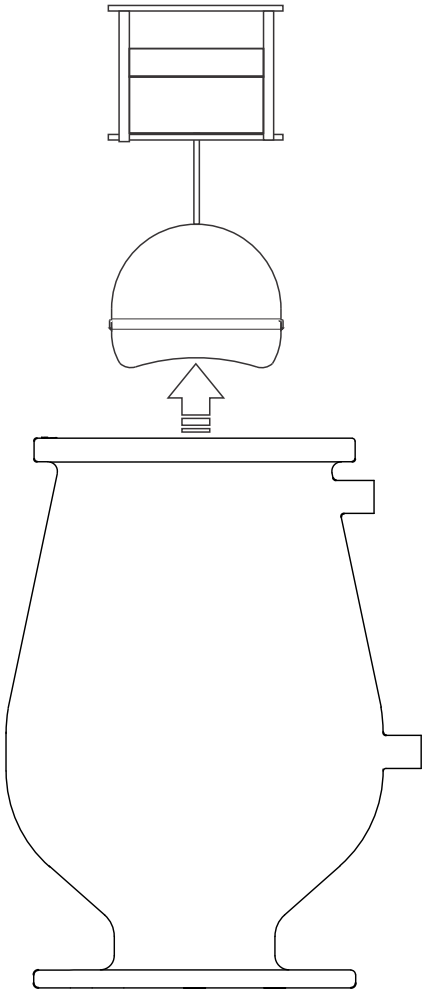
Step 16: Replace Upper Locating Lug and Lower nut

Replace the upper locating lug and lower nut tensioning it so that it holds the “anti-shock” float up without compressing the spring.



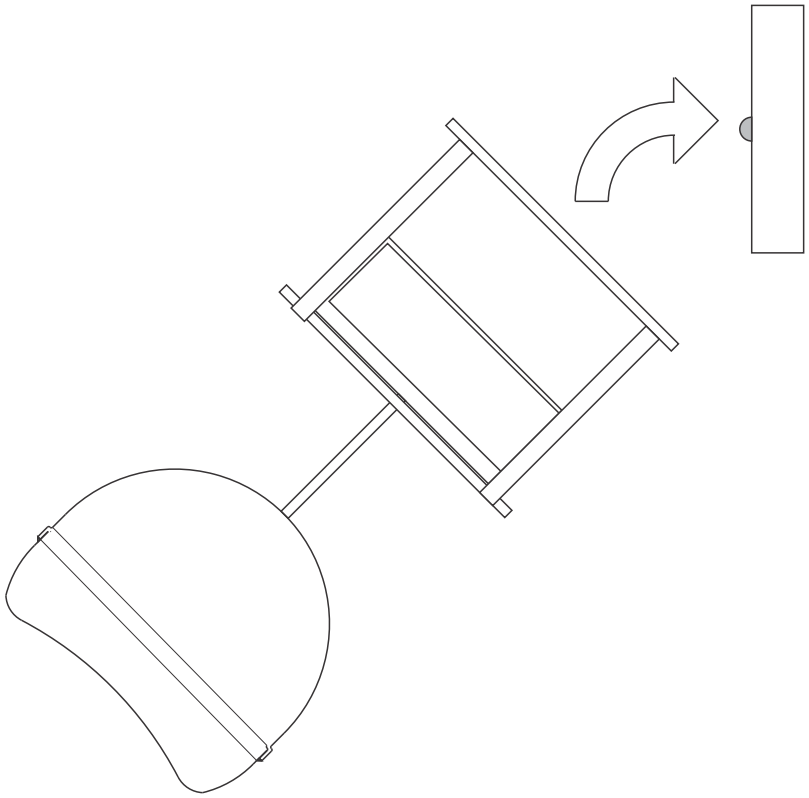
Step 15: Replace the upper nut

replace the upper nut to lock the lower nut in place



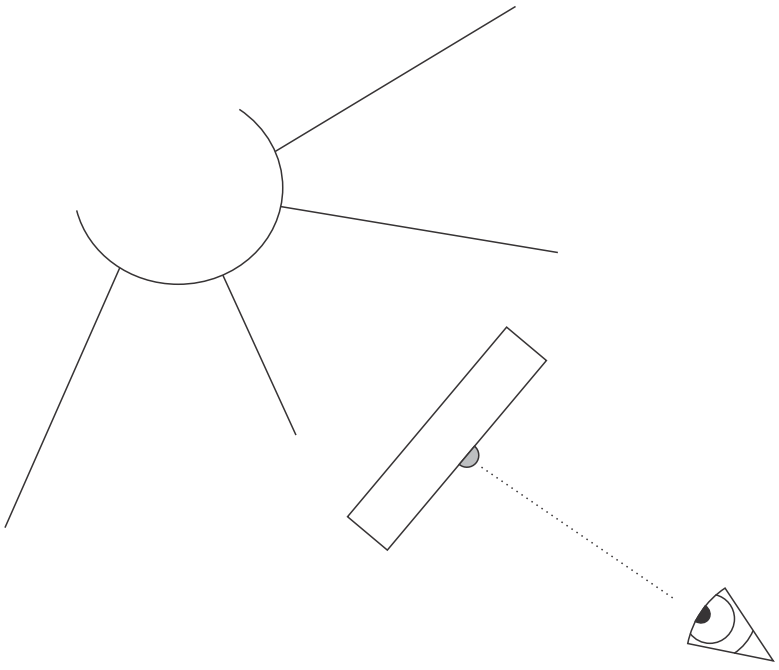
Step 16: Remove Cage with float assembly

Reevaluate that the o-ring does need replacing and then replace



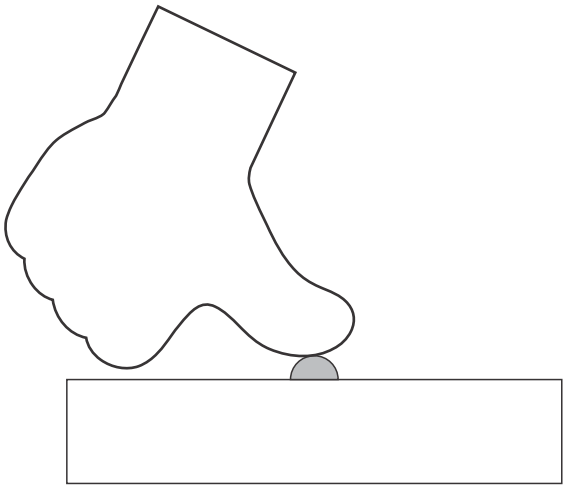
Step 17: Remove the upper float (nozzle float)

Remove the upper float



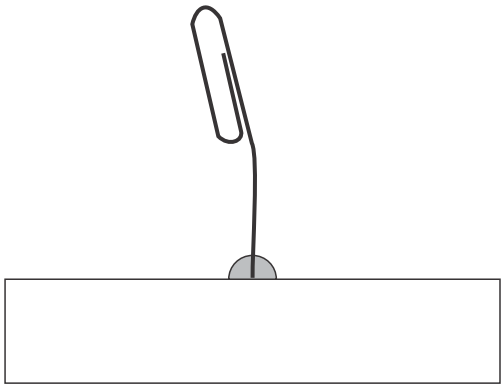
Step 16: Check the nozzle for blockages

Holding the float up to the light check for blockages, if light is visible through the nozzle no blockage is present if light is not visible the nozzle needs to be cleared.



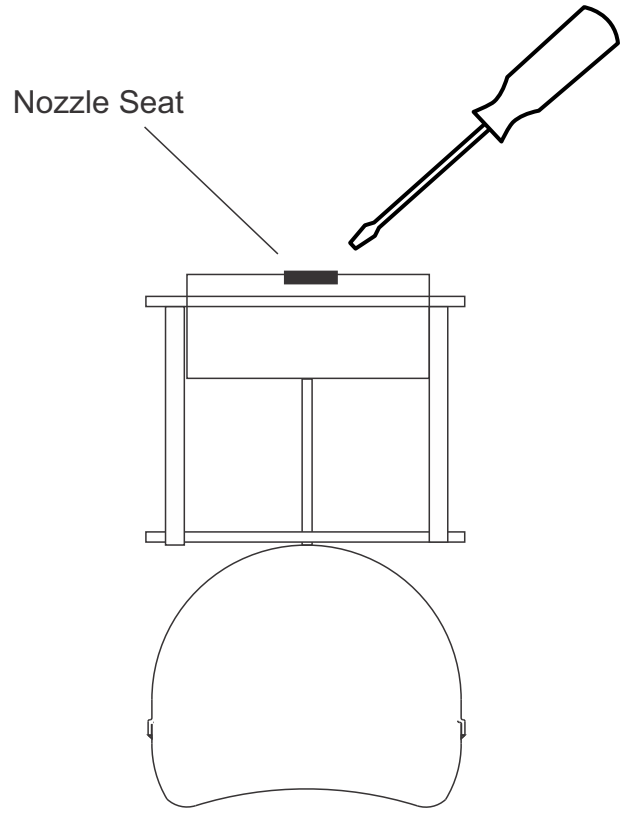
Step 18: Check the nozzle for surface damage

Check the nozzle for sharp edges dents or burs that may damage the seat, if any are evident replace the nozzle



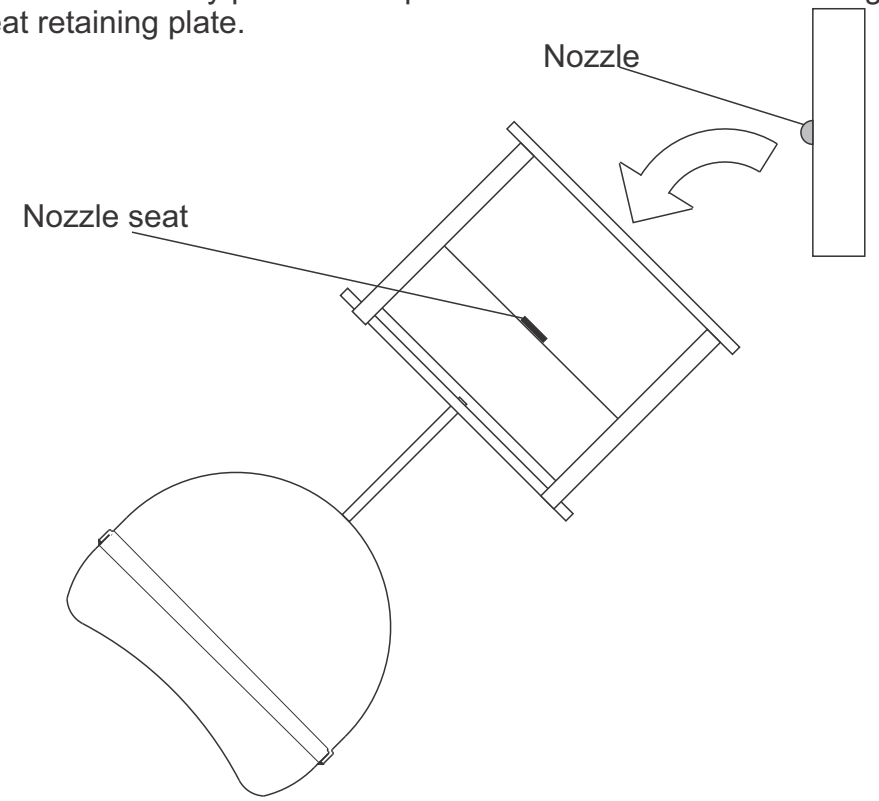
Step 19: Clear blockages from nozzle

Clear blockages from the nozzle using a thin item such as a paper clip push it through the nozzle clearing any dirt or debris from the nozzle.



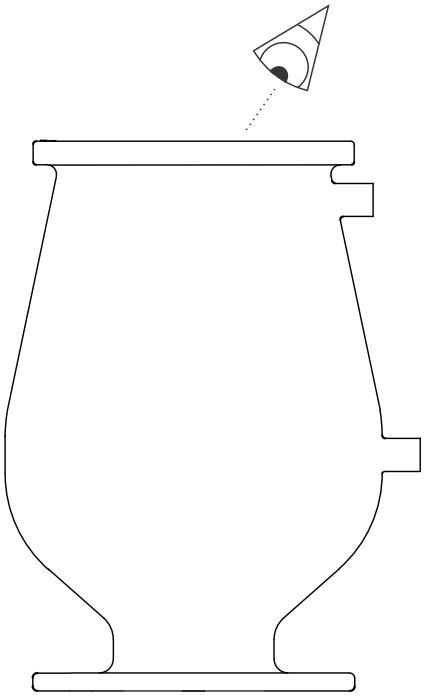
Step 20: Check the Nozzle seat

Place the lower float on a flat surface and let the cage drop, check the nozzle seat for damage any permanent wear marks or tears may warrant changing of the seat. To change the seat, use a screwdriver to pry the seat loose. In valves larger than 80 mm the seat will be held in place with a seat retaining plate. Which will require a flat screwdriver to remove. The replacement seat can be easily pushed into place. For valves 80 mm and larger remember to replace the seat retaining plate.



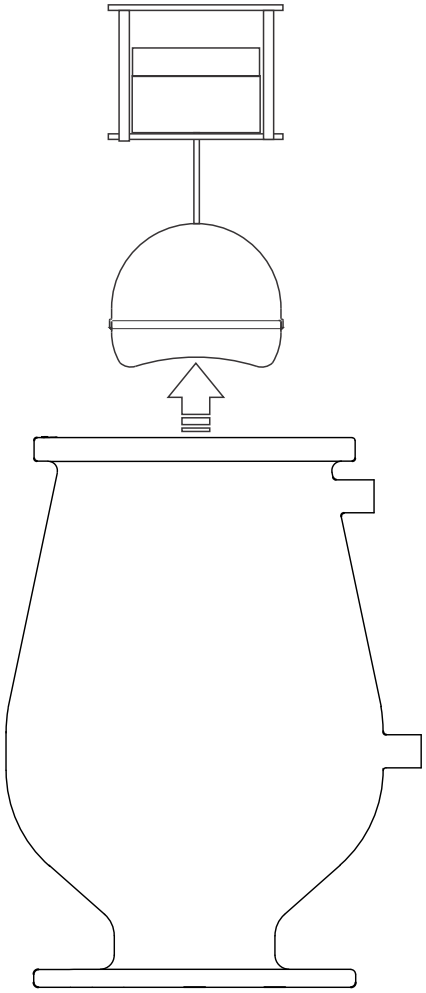
Step 21: Replace upper float (Nozzle float)

replace the nozzle seat making sure that the nozzle touches the nozzle seat.



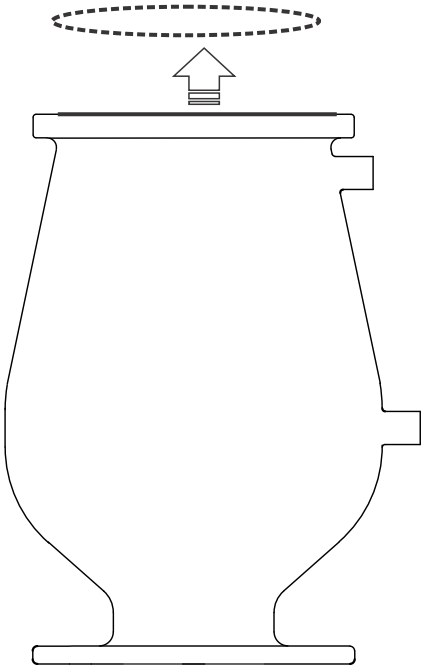
Step 22: Check body for debris

Make sure the body is clear of any debris and buildup



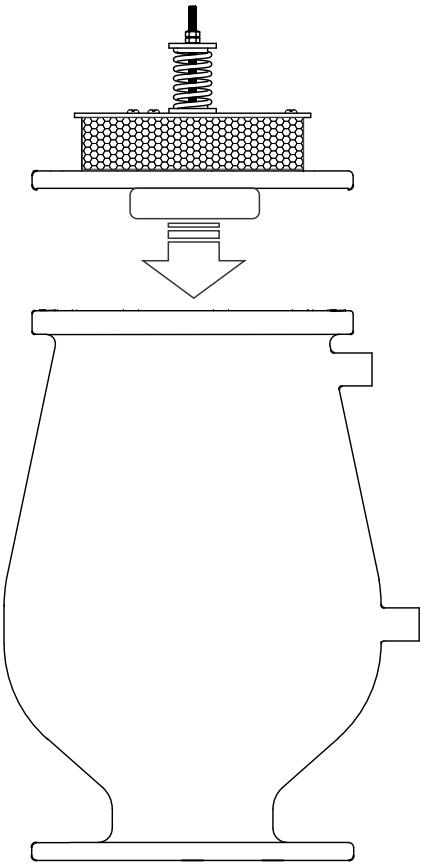
Step 23: Replace Cage with float assembly

Replace the cage and float assembly into the body



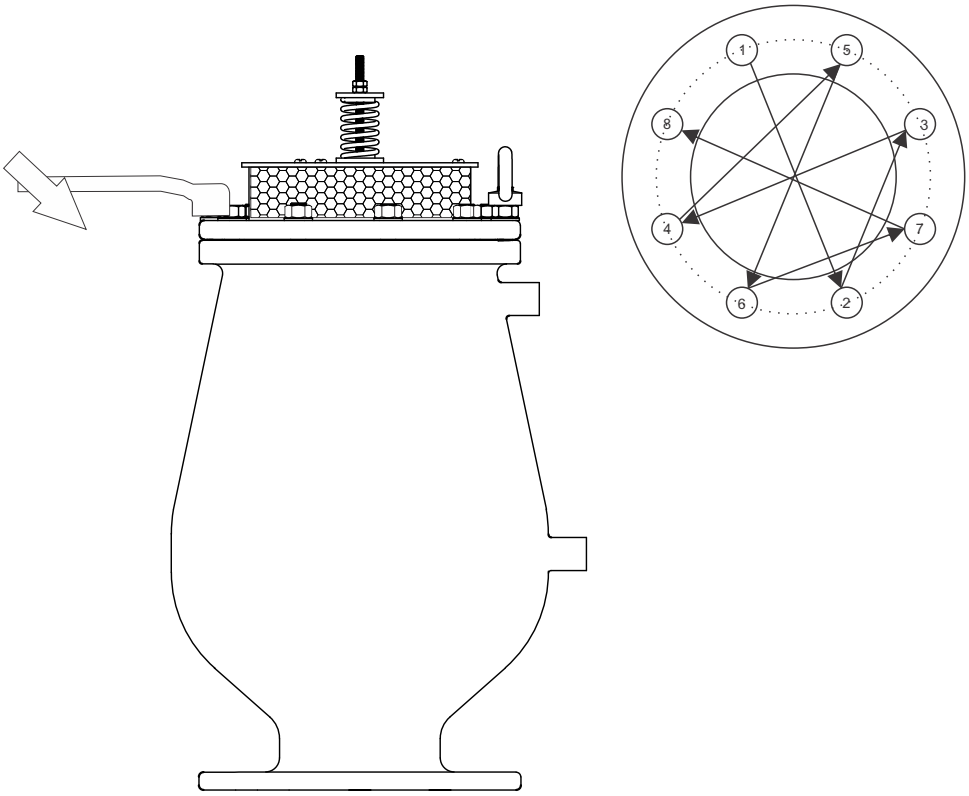
Step 24: Check body o-ring seal

Check if the o-ring in the top flange is in good condition and if necessary replace



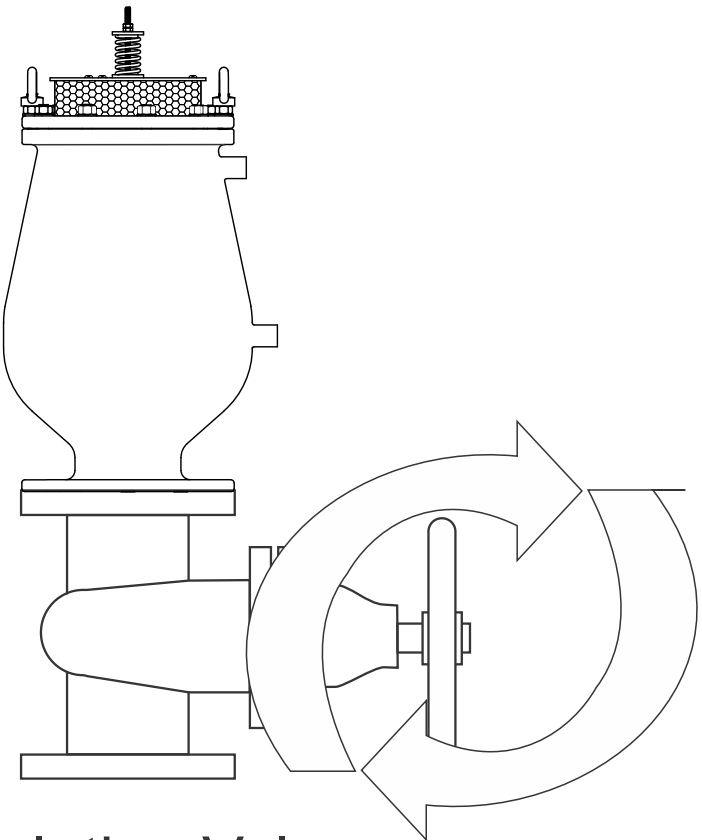
Step 25: Replace top flange assembly

Carefully drop the top flange assembly into place making sure to line up holes and not disturb the o-ring seal.



Step 26: Tighten Bolts

Tighten Bolts remember to follow a cross tightening pattern to ensure equally distributed pressure



Step: 27 Open Isolating Valve

once you have verified that all fasteners are secure and properly tightened slowly open the isolating valve

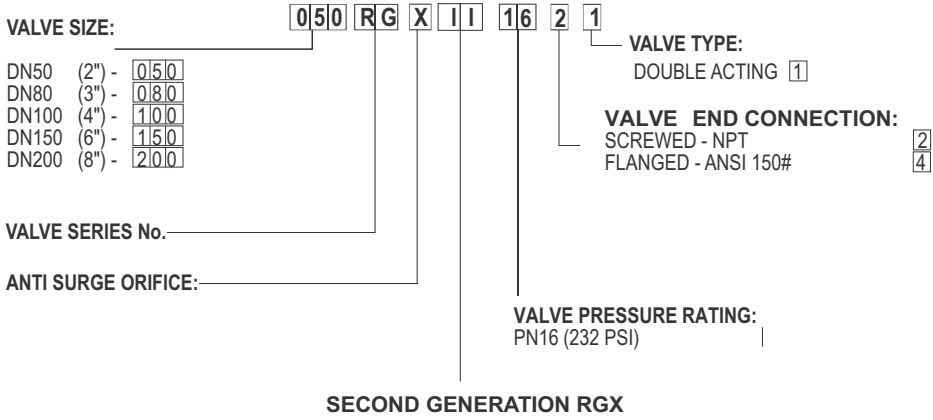
Vent-O-Mat Identity Labels

Each Vent-O-Mat valve sold has an identity label attached to the barrel, providing pertinent information on the valve. A sample of the label is provided below. For maintenance and technical assistance, kindly contact the agent that services your area (see page 13 for Vent-O-Mat's agent list), or the manufacturer (details on label), quoting the information on the label.

1. SEQ. No: Refers to sequential number of batch valves for specific orders/ contracts.
2. MODEL: Refer to page 14 for explanation of Model Numbers.
3. MAX WORKING PRESSURE: Indicates the valve's designed working pressure in kPa.
4. REF. No: Serial number that reefers to Vent-O-Mat's internal paperwork, including test compliance that can be crossed referenced to any test carried out on valve.

EXPLANATION OF MODEL NUMBERS

Vent-O-Mat model numbers are a series of numbers providing information on valve size, valve type, valve pressure rating and valve end connection.



Trouble Shooting

Problem	Reason	Course of Action
Valve Leaking through large orifice	Construction debris stuck in valve due to Commissioning of new pipeline.	Follow enclosed Maintenance Instructions.
Valve leaking through the large orifice despite no debris Entrapped in valve.	Valve above the hydraulic gradeline.	Reposition valve 5 metres below hydraulic gradeline.
Small volumes of water evident on top flange during initial filling.	Normal operation of valve.	No course of action required

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SEWAGE AIR VALVE SIZING AND POSITIONING

The presence of air/gas in a sewer main in service or in the process of being filled is well known to be the cause of serious problems such as delay in filling, throttling and reduction in discharge capacities, risk of surge and corrosion.

The indiscriminate selection and positioning of double acting sewage air valves, without thorough evaluation of the system characteristics and dynamics will not solve the problem of air/gas in the main but can and will lead to the aggravation of phenomena associated with it's presence as well as introduce other destructive phenomena.

Air valve selection and positioning is a complex exercise because of the unpredictable nature of air/gas as it is influenced by many factors such as pressure, temperature, pipeline velocities etc., and it in turn influences the pipeline dynamics dramatically, making it difficult to quantify.

This section of the document provides the engineer with a guideline of where to position and how to size Vent-O-Mat sewage air valves to ensure the maximum performance and protection is gained from every valve installation. Reference should also be made to Vent-O-Mat's other publications and Vent-O-Mat's computer sizing disc for a more comprehensive guide on air valve sizing and positioning.

Positioning of Sewage Air Valves

Sewage air valves are positioned primarily on peak points to discharge air/gas during initial filling and to draw air into the pipeline under drainage conditions. There are however, a number of other locations where sewage air valves need to be installed to ensure effective pipeline operation and protection against phenomena such as surge. The table below provides a quick check reference on where to position sewage air valves.

Recommended Air Valve Locations
On apex points relative to the hydraulic gradeline.
5 metres below the apex points formed by the intersection of the hydraulic gradeline.
Negative breaks - increase in downward slope or decrease in upward slope.
Long horizontal sections - every 600 metres(1969 ft).
Long ascending sections - every 600 metres(1969 ft).
Long descending sections - every 600 metres(1969 ft).
Pump discharge - subsequent to a pump non return valve.
Blank ends - where a pipeline is terminated by a blank flange or a valve.

Sizing of Sewage Air Valves for Air Intake (Vacuum Conditions)
Sewage air valves are first and foremost sized for vacuum conditions (drainage) which may result from the scouring of the pipeline, pipeline rupture or instantaneous pump stoppage causing column separation.

The objective in sizing sewage air valve for vacuum conditions is to determine the smallest sewage air release and vacuum break valve capable of admitting air into the pipeline whilst not exceeding a differential pressure that would put the pipeline and gasket joint at risk due to negative internal pressure.

Good pipeline design practice dictates that the following negative pressures not be exceeded for various pipe material to ensure that pipe collapse or seal failure do not occur.

Pipe Material	Recommended Negative Differential
Steel	35 kPa(5 psi)
Ductile Iron	35 kPa(5 psi)
Fibre Cement	35 kPa(5 psi)
GRP	20 kPa(3 psi)
uPVC	15 kPa - 20 kPa(2-3 psi)
HDPE	15 kPa - 20 kPa(2-3 psi)
Concrete	35 kPa(5 psi)

Sewage air valves are generally sized on scouring velocities or partial rupture to economise on the valve size selected. The following rupture rates (as a percentage of pipeline area), are generally used. Note all these factors are taken into consideration in the Vent-O-Mat Sizing Disc which is freely available to any interested party.

Pipeline Material	Rupture Rate on which to base Size of Sewage Air Valve
Steel	10 - 15 %
GRP	10 - 15 %
Fibre Cement	50 - 100 %
Ductile Iron	10 - 15 %
uPVC	10 - 20 %
HDPE	10 - 20 %

Scouring rates are generally 11 to 12% of pipeline area.

Sizing of Sewage Air Valves for Air Discharge (Initial Filling Conditions)
It is prudent to size an air valve for both filling and drainage for a particular point on the pipeline and always to select the larger valve.

Sizing a sewage air valve for filling is based on the velocity through the pipeline, the diameter of the pipeline and the pipeline material. Below is a quick check guide to determine if the valve on your pipeline is sized correctly. Vent-O-Mat recommends however, that air valve sizing should be done, utilising the Vent-O-Mat sizing programme, and with reference to Vent-O-Mat's document titled "Air Valve Technology Reviewed".

Pipeline Velocity	Pipeline Diameter	Recommended Valve Size
1 m/sec(3.3 ft/sec).	DN100 to DN400(4”-16”)	DN50(2”)
1 m/sec(3.3 ft/sec).	DN400 to DN600(16”-24”)	DN80(3”)
1 m/sec(3.3 ft/sec).	DN600 to DN700(24”-28”)	DN100(4”)
1 m/sec(3.3 ft/sec).	DN700 to DN900(28”-36”)	DN150(6”)
1 m/sec(3.3 ft/sec).	DN900 to DN1400(36”-56”)	DN200(8”)
2 m/sec(6.6 ft/sec).	DN100 to DN200(4”-8”)	DN50(2”)
2 m/sec(6.6 ft/sec).	DN200 to DN400(8”-16”)	DN80(3”)
2 m/sec(6.6 ft/sec).	DN400 to DN500(16”-20”)	DN100(4”)
2 m/sec(6.6 ft/sec).	DN500 to DN800(20”-32”)	DN150(6”)
2 m/sec(6.6 ft/sec).	Dn800 to DN1000(32”-40”)	DN200(8”)

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TECHNICAL FEATURES & FINANCIAL BENEFITS

The criteria for assessing the merits of any form of pipeline equipment are capital costs and operating and maintenance requirements. It is likely if all the below are taken into account, Vent-O-Mat valves will be seen as a cheap, reliable and efficient form of pipeline protection.

Vacuum Protection
All Vent-O-Mat valves have large orifice diameters equal to the nominal size of the valve i.e., a DN200(8") valve has a 200mm(8") orifice. This ensures the least possible resistance to the intake of air and consequently the least possible negative pressure within a draining pipeline.

Discharge Performance
The Vent-O-Mat valve design is not limited by the velocity within the pipeline and the differential across the large orifice as conventional air valves are. This ensures the effective removal of all air/gas from a filling pipeline whilst eliminating the possibilities of surge on closure of the large orifice.

Serviceability
The Vent-O-Mat valve is virtually maintenance free, but facilitates extreme ease of service and maintenance in the rare instances when required. Components are in corrosion free materials to allow problem free disassembly and reassembly even after years of operation. All maintenance spares are replaceable without special tools or skills.

Performance
Vent-O-Mat series RGX has been designed and developed to provide the optimum usable and safe performance relative to all functions. Selection data has bee substantiated through the council of Scientific and Industrial Research - South Africa and other testing and can be confidently referenced.

Surge Protection
Vent-O-Mat offers a cost effective and efficient solution to destructive phenomena such as surge as all valves are supplied as standard, with an integral "Anti-Surge" surge alleviation mechanism. This device only operates in instances such as rapid filling or column separation to effectively and efficiently eliminate surge, very much like an air bag in a motor vehicle in that it only operates in emergencies.

Financial Benefits
The "Anti-Surge" mechanism together with other features of the Vent-O-Mat design provides a number of financial benefits some of which are:

Reduction in Size or Total Elimination of Traditional Surge Protection Devices
The valve acts both as an effective double acting air valve and as a cost effective surge alleviation mechanism. Accommodating the Vent-O-Mat series RGX air valve in total surge protection strategy renders total protection to a pipeline at a fraction of the cost of any conventional method.

Shortening of Operational Procedures
Lengthy operational procedures can be dramatically shortened when utilising Vent-O-Mat air valves with out the risk of pipeline collapse, premature closure or water hammer. This allows for major time saving.

Cost Saving on Overspecified Pipe
Very many design engineers overspecify on pipe thickness to prevent unforeseen pipeline damage. This is unnecessary when utilising Vent-O-Mat air valves as it efficiently manages air within the pipeline therefore greatly minimising the possibility of unforeseen accidents.

Increase of Flow Through Existing Infrastructure
Many pipeline operate very inefficiently because of restriction created by air/gas that is not released effectively by air valves. Vent-O-Mat valves are designed to discharge all air/gas in a pipeline regardless of flow velocities, without the inducement of water hammer and other destructive phenomena associated with kinetic air valves. This feature allows for the increase of flow of up to 30% through existing infrastructure, by the mere replacement of conventional air valves with the Vent-O-Mat design.

SHIPPING & STORAGE

Shipping
Vent-O-Mat valves are generally shipped by the factory or it's agents in well constructed wooden crates or cases, with the content, destination and factory (or agent's) details clearly marked by a label on at least two sides of the crate or case. Valves are carefully packed to ensure that no damage occurs during transit.

Storage
It is recommended that the valves be stored in a cool area if not to be used immediately.

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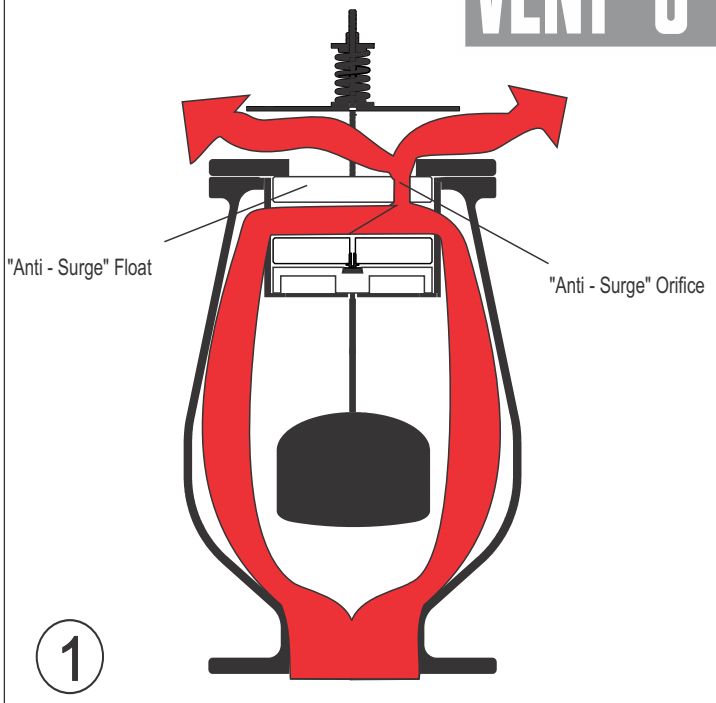
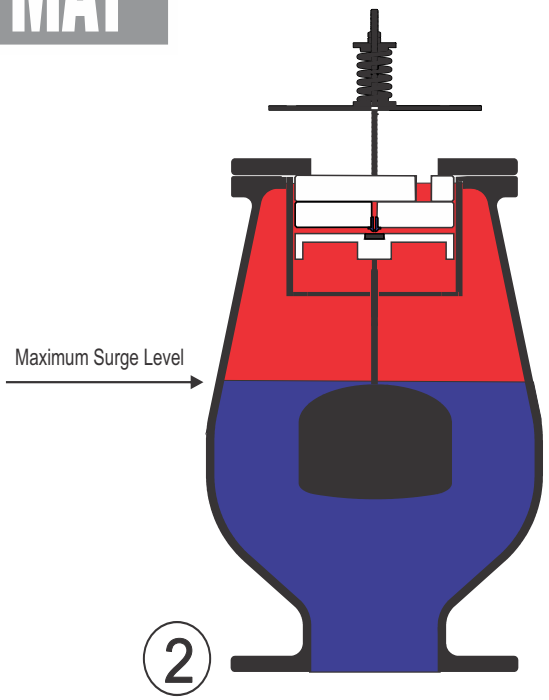


1

PIPELINE FILLING -
(SUB CRITICAL AND EXCESSIVE
SEWAGE/ EFFLUENT APPROACH VELOCITY)

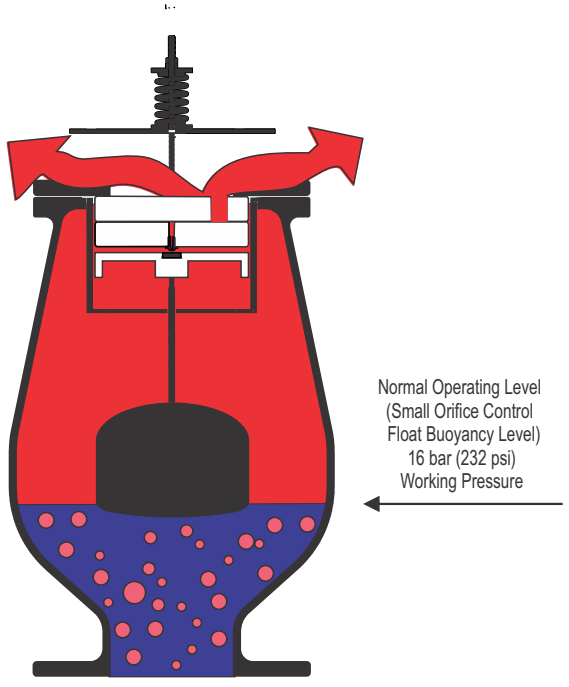
Air/gas flows through the annular area around the control float assembly and to atmosphere through the “Anti-Shock” orifice.



2

PIPELINE FULLY CHARGED

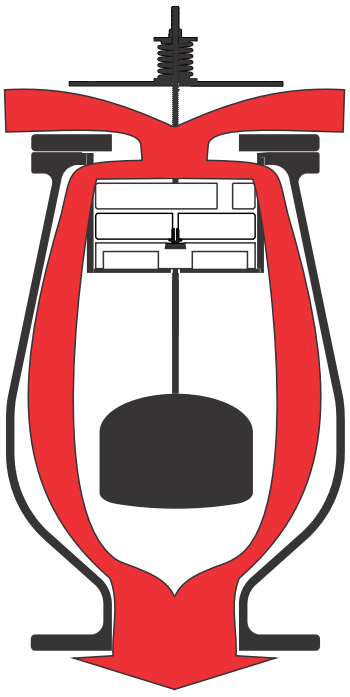
Sewage/effluent has entered the valve chamber and buoyed the floats to close both the “Anti-Shock” and the small orifice. The design's compression/ volume relationship prevents the media from ever exceeding the maximum surge level indicated above . The resultant sewage/ effluent f reeareap rotectsa gainstt hef oulingo ft he orifice seals by solids or high viscous substances



3

PRESSURIZED AIR/GAS RELEASE
PIPELINE OPERATING

The volume of disentrained air/gas increases in the valve, displacing the sewage/effluent to below the normal operating level. This results in the control float dropping away from the small orifice. The pressurized air/gas is then discharged to atmosphere. Once all additional air is discharged the control float will close the small orifice. Restore the sewage effluent to the normal operating level.



4

VACUUM RELIEF (AIR INTAKE)
PIPELINE DRAINING

Upon pump stop, Sewage/effluent drains from the sewage air valve and the negative differential created by the draining liquid causes atmospheric air to push the "Anti-Surge" Float down, opening the Large Orifice and allows air to displace the draining liquid to prevent potentially damaging internal negative pressure.

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VENT-O-MAT SERIES RGXII OPERATION

PRE NOTES:

A)VENTING OF A FILLING PIPELINE:

The operation of a conventional sewage air release valve is such that fast approaching sewage/effluent is almost instantaneously halted by the valve's closure. Consequently surge pressures of potentially damaging proportions can be generated in a pipeline system, even at normal filling rates.

In addition to venting through the Large Orifice when sewage/effluent approach velocities are sub critical, the Vent -O- Mat series RGX sewage air release valves feature an automatic "Anti - Surge" Orifice device that serves to decelerate sewage/effluent approaching at excessive speed, thereby limiting pressure rise in the pipeline.

B)SURGE ALLEVIATION - PIPELINE PRESSURIZED:

In instances where a pipeline experiences liquid column separation due to pump stoppage, high surge pressures can be generated when the separated column rejoins.

The Vent -O- Mat series RGX takes in air through the unobstructed large orifice when column separation occurs, but controls the discharge of air/gas through the "Anti-Surge" Orifice as the separated column commences to rejoin. The rejoining impact velocity is thereby sufficiently reduced to prevent an unacceptably high surge pressure in the system. In the same way the series RGX valve prevents high surge pressures resulting from liquid oscillation in a pipeline.

1. PIPELINE FILLING (SUB CRITICAL SEWAGE/ EFFLUENT APPROACH VELOCITY)

Air/gas flows through the annular area around the control float assembly and to atmosphere through the "**Anti-Shock**" orifice.

2. PIPELINE FILLING (EXCESSIVE SEWAGE/ EFFLUENT APPROACH VELOCITY)

Air/gas is forced through the "Anti - Surge" Orifice resulting in a deceleration of the approaching liquid due to the resistance of rising air/gas pressure in the valve.

Attention is drawn to Pre Notes (A) and (B) above.

3. PIPELINE FULLY CHARGED

Sewage/effluent has entered the the valve chamber and buoyed the floats to close both the large and the small orifice. The design's compression/volume relationship prevents the media from ever exceeding the maximum surge level indicated in diagram 3. The resultant sewage/effluent free area protects against the fouling of the orifice seals by solids or high viscous substances - for this reason **NO FLUSHING CONNECTIONS ARE NECESSARY.**

4. PRESSURIZED AIR/ GAS RELEASE - PIPELINE OPERATING

The volume of disentrained air/gas increases in the valve and displaces the sewage/effluent to the lower, normal operating level (small orifice control float buoyancy level). Any additional lowering of the sewage/effluent level, as would occur when more air/gas enters the valve, will result in the control float dropping away from the small orifice through which pressurized air/gas is then being discharged to atmosphere.

The control float will close the small orifice when sufficient air/gas has been released to restore the sewage/effluent to the normal opperating level.The considerable sewage/effluent free area obviates the possibility of leaks that could otherwise be caused by solids entering the sealing areas - for this reason **NO FLUSHING CONNECTIONS ARE NECESSARY.**

5. VACUUM RELIEF (AIR INTAKE) - PIPELINE DRAINING

When the internal pipeline pressure reduces to atmosphere the "Anti - Surge" mechanism and control float assembly drops, opens the large orifice and allows the pipeline to take in air to displace the draining media so as to prevent undesirable low negative pressure*.

The hollow, smooth side float design discourages adherence of solids and viscous substances which, therefore, tend to withdraw from the valve into the pipeline when draining occurs - for this reason **NO FLUSHING CONNECTIONS ARE NECESSARY.**

***NOTE:** Negative pressure values are dependant on valve size selection.

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SERIES RGXII

SEWAGE AIR RELEASE & VACUUM BREAK VALVES

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