



Series WTR Owner's Manual

CONTENTS



- Introduction
- Installation
- General Specifications
- Material Specifications
- Maintenance
- Operation
- Warranty
- Parts

Designed Air Passage Science



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VENT-TECH

WATER

COMBINATION AIR RELIEF VALVES

The **VENT-TECH** Combination Air Relief Valves work in many different types of environments, protecting pipeline infrastructure against the effects of water hammering and vacuum. High quality stainless steel parts, HDPE floats, anti-wear inserts and air flow design enhancements are components of each Vent-Tech air relief valve. When combined with Vent-Tech's superior design elements, these materials ensure that the valve operates in highly corrosive environments within a wide range of pressures and temperatures. Each valve body contains air flow enhancements to maximize flow under vacuum conditions.

Float Description

The Vent-Tech Combination Sewage Air Relief Valve product line typically houses three HDPE floats that are activated by a pipeline's fluid and gas pressures, opening and dynamically closing in response to the changing fluid and gas pressures within the valve.

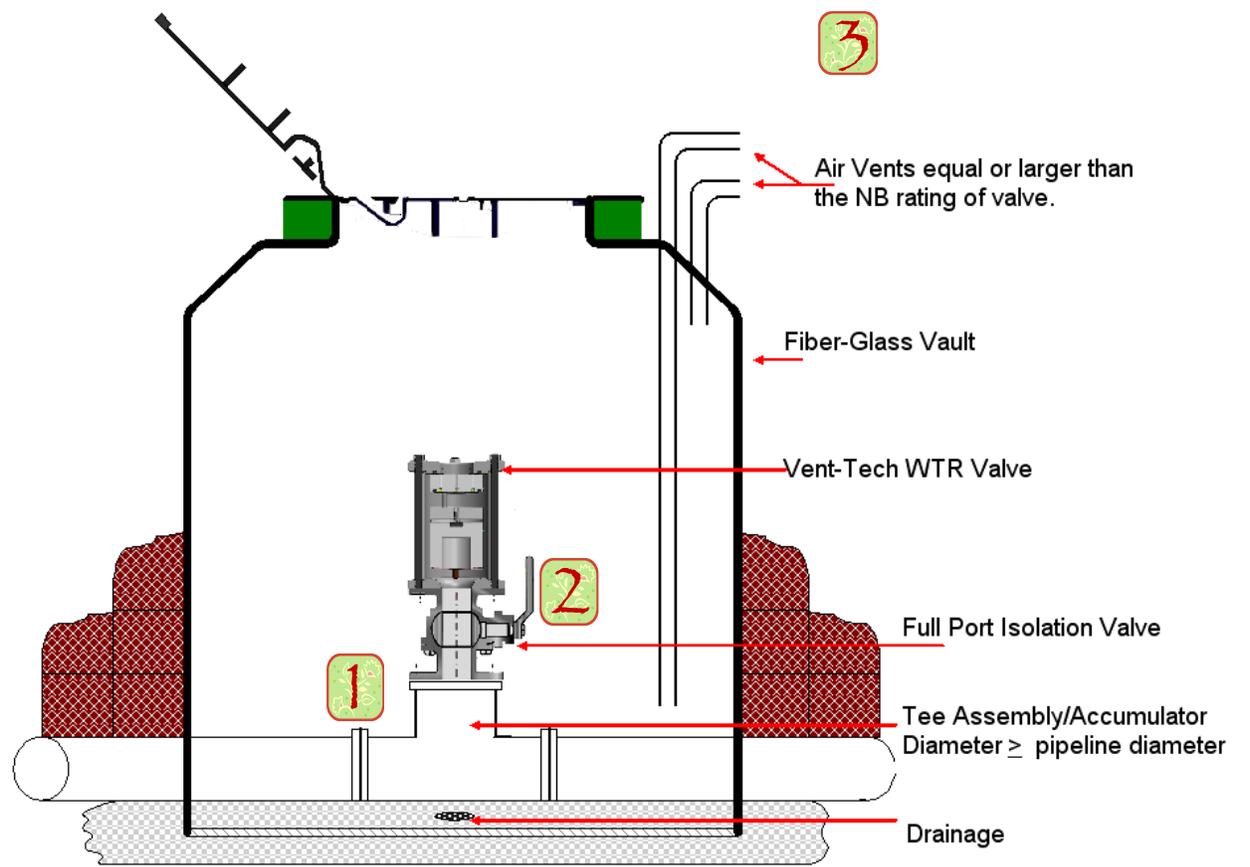
In general, the floats operate as follows:

- Anti-Surge Float - Controls high air flow velocities, using multiple orifices protected by high wear inserts to prevent damage due to wear and high temperatures. It is designed to provide maximum air flow, surge control and dynamic closure.
- Nozzle Float – Provides pressurized release of accumulated air.
- Control Float – Closes the Valve orifice by seating the Nozzle Float against the Anti-Surge Float using the physics of buoyancy. Also activates the Nozzle Float when buoyancy is reduced.

Installation

Selection and installation of the Vent-Tech Combination Air Relief Valves should be made with careful review by the system engineers. Based upon the years of experience and expertise of International Valve, critical elements of a successful air relief valve installation are shown below.

KEY COMPONENTS OF THE RECOMMENDED LAYOUT (SIZES & VALVE TYPE WILL VARY)



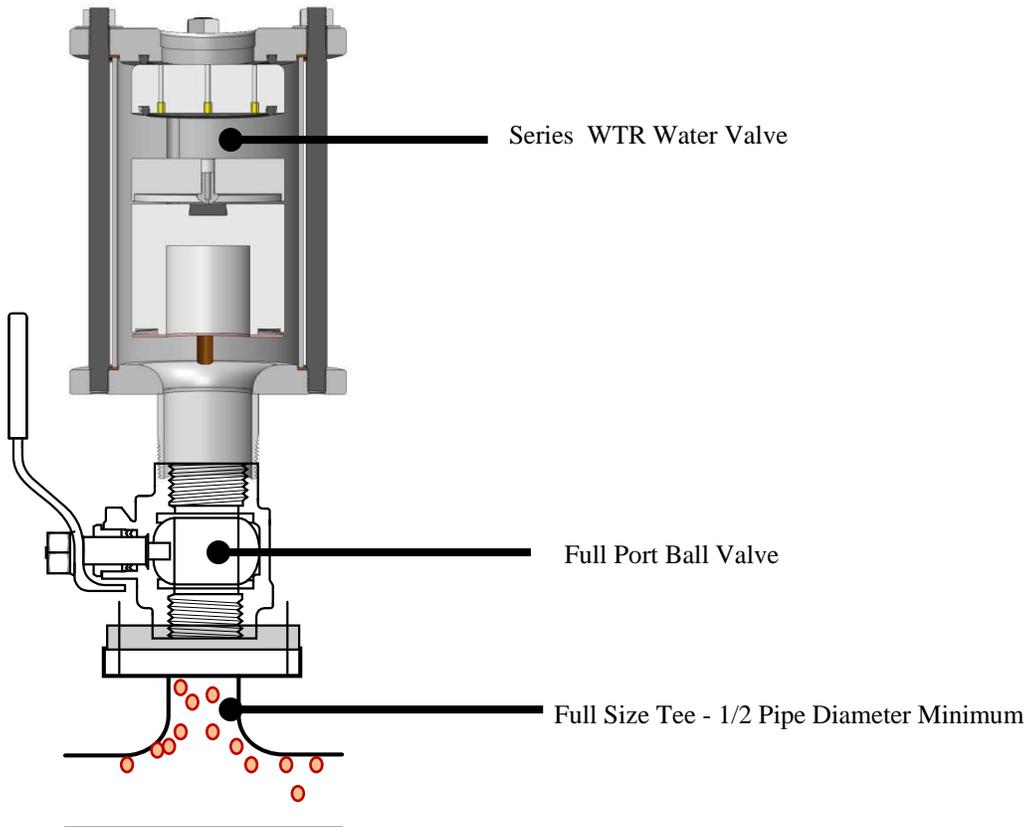
1 Air Collector/ Accumulator

It is recommended that an air collector Tee be installed underneath the air valve. The dimensions of the valve end of the Tee should be no less than one-half the diameter of the main line. Therefore, as example, an 8-inch line should have at minimum a 8x8x4 Tee.

2

Isolation Valve

Isolation valves are necessary for removal, repair and cleaning of the air valve.



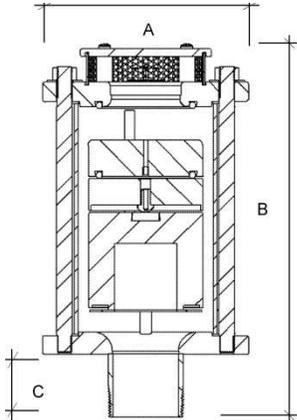
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Vault Layout

International Valve Marketing offers their Vault-Tech as a complete drop-in-place pre-assembled unit. The vault layout is an important feature of a well installed and well operating air valve. The vault should be well drained with a good layer of stone or be installed with water-tight floor and ceiling. The chamber should be supported so that it does not settle. Two vents should also be available. The vent diameter should be no less than the diameter of the air valve vent. Venting through the manhole hole cover/lid is not an acceptable alternative.



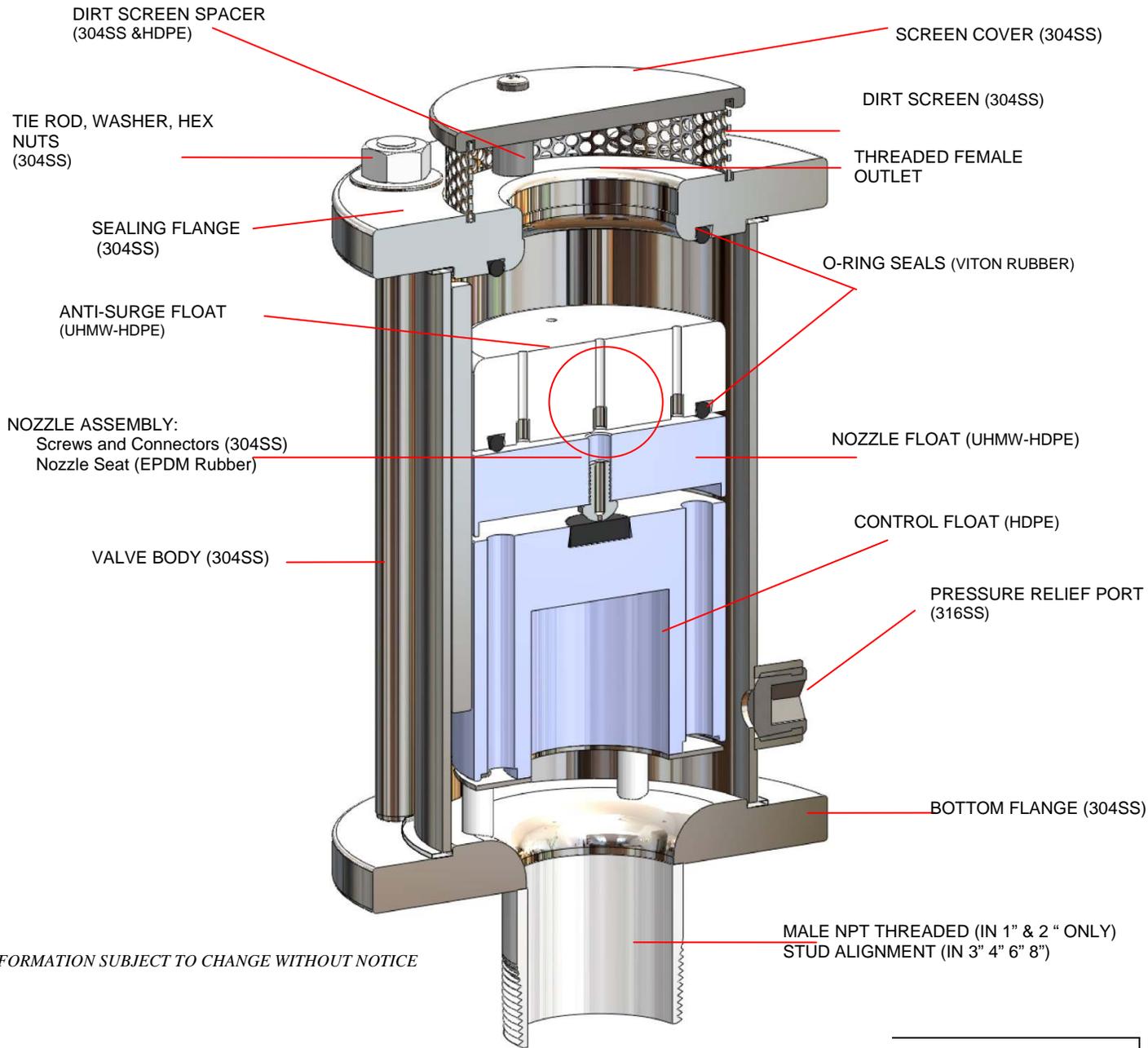
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WTR-C Valve
Owners' Manual

VALVE TYPE	<u>COMBINATION AIR RELIEF VALVE</u> <u>STANDARD WTR-C Series</u>						
	VALVE OPERATIONS: <ol style="list-style-type: none"> 1. High volume air evacuation while pipeline fills 2. High volume vacuum relief during pump shutdown 3. Discharge of air/gas from pressurized pipeline 4. Surge abatement for high velocity start up conditions, column separation and fluid oscillation 						
VALVE SIZES	1-2-3-4-6-8 (inches) 10&12 Inch Available on Special Order						
MAXIMUM DESIGN OPERATING PRESSURES	Bar 25: 363 psi Bar 40 :580psi						
VALVE CONNECTIONS	INLET:	<ul style="list-style-type: none"> • Male NPT threaded 1" and 2" only • 3-8 Inch Studded Flange Connection 					
	OUTLET	<ul style="list-style-type: none"> • Swivel flanges available • Female connection 					
MATERIAL SPECIFICATIONS	ANSI B16.5 CLASS 150, EXCEEDS AWWA C 512 304SS, 316SS, HDPE, UHMW-HDPE, Viton, EPDM						
VALVE TESTS	<ul style="list-style-type: none"> • Leak test up to 1.5 valve rated pressure • Pressurized air release • Low pressure leak test 						
DIMENSIONS (INCHES) APPROX. WEIGHTS (LBS)	INLET SIZE (in)	Bar	MODEL	A (in)	B (in)	C NPT (in)	WT. (lb)
	1	25	01WTR25TCS	4.72	10.2	1.7	10
	1	40	01WTR40TCS	4.72	10.2	1.7	11
	2	25	02WTR25TCS	6.5	11.78	2.0	20
	2	40	02WTR40TCS	6.5	11.78	2.0	21
	3	25	03WTR25SCS	9.0	13.0	1.8	6.0
	3	40	03WTR40SCS	9.0	13.0	1.8	6.625
	4	25	04WTR25SCS	10.0	14.5	1.8	7.5
	4	40	04WTR40SCS	10.0	14.5	1.8	7.875
	6	25	06WTR25SCS	14.3	19.5	2.1	9.5
	6	40	06WTR40SCS	14.3	19.5	2.1	10.625
	8	25	08WTR25SCS	16	22.0	2.1	11.75
	8	40	08WTR40SCS	16	22.0	2.1	13.0

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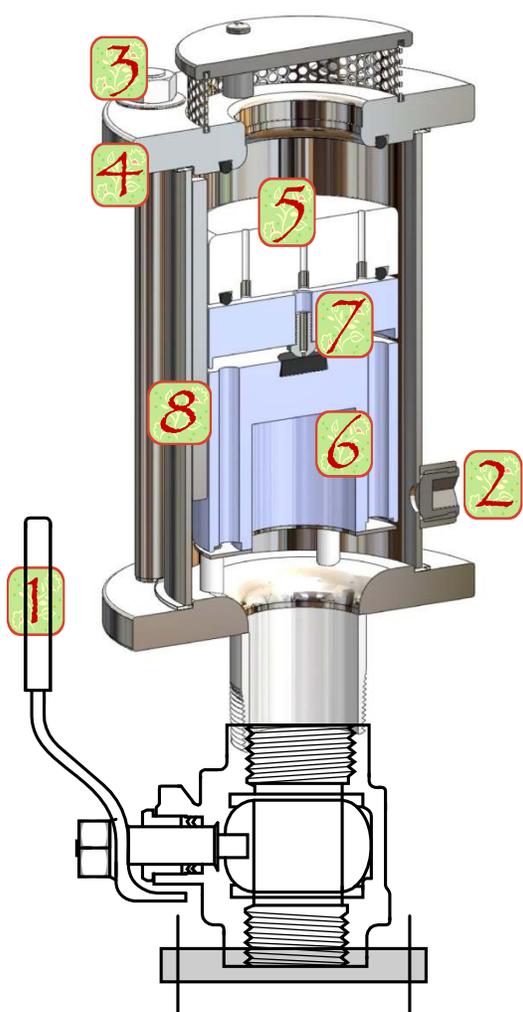
Vent-Tech
WTR-C Valve - 1" - 8"
Owners' Manual



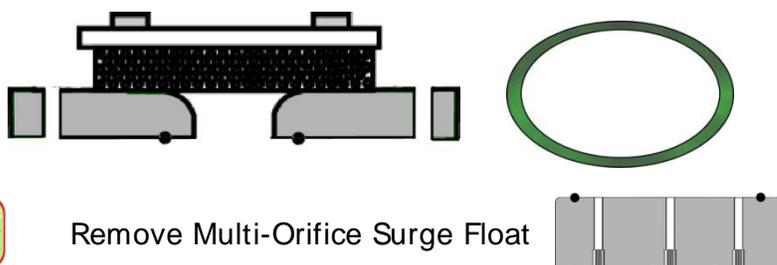
INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE

AIR RELIEF VALVE	
Series:	Size:
WTR-C	1" TO 8-INCH
	Date: 6-2010
MATERIAL SPECIFICATIONS	

Maintenance



- 1 Close Isolation Valve
- 2 Open Relief Port until pressure is released
- 3 Loosen and remove Top Flange Bolts/Nuts/Washers
- 4 Remove Top Flange and Fiber Sealing Gasket
- 5 Remove Multi-Orifice Surge Float
- 6 7 Remove Control Float and Nozzle Float
- 8 Remove Valve Body & Fiber Sealing Gasket



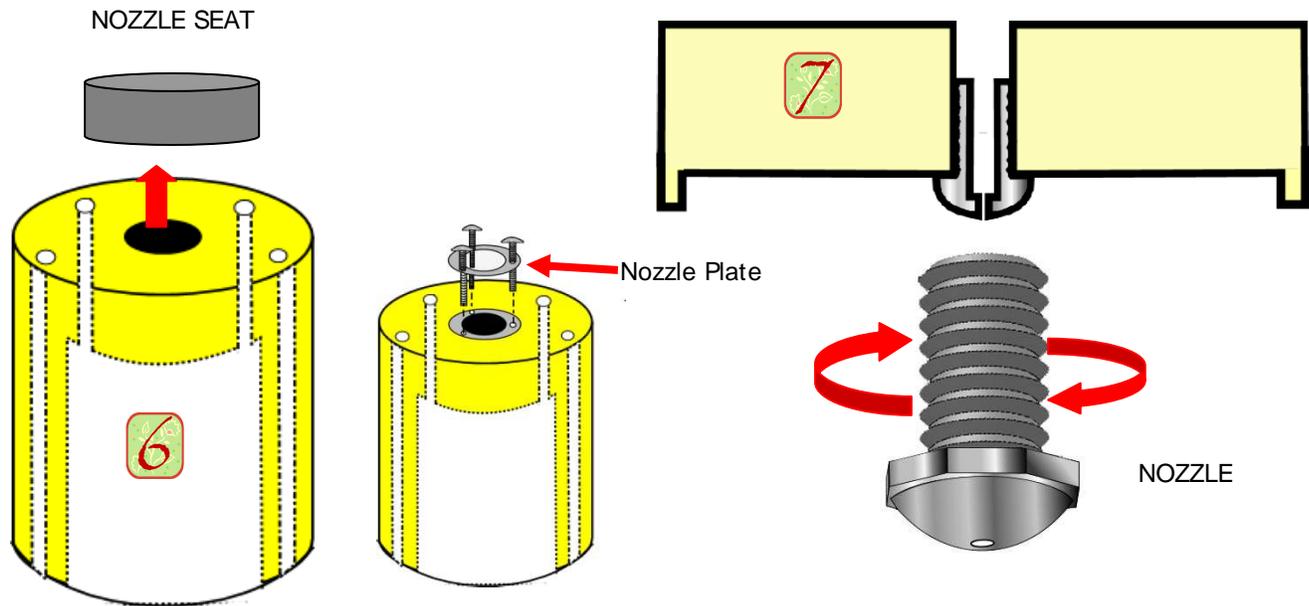
The valve is now disassembled. Clean Top Flange, Surge Float and Control Float. Clean interior of valve body.

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Vent-Tech
WTR-C Valve - 1" - 8"
Owners' Manual

The Nozzle Float and Control Float are attached in the larger valves. Larger valves have the Control Float and Nozzle Float connected via Assembly Screws. The Nozzle and Nozzle Seat should be examined and replaced when necessary.

Smaller Valves

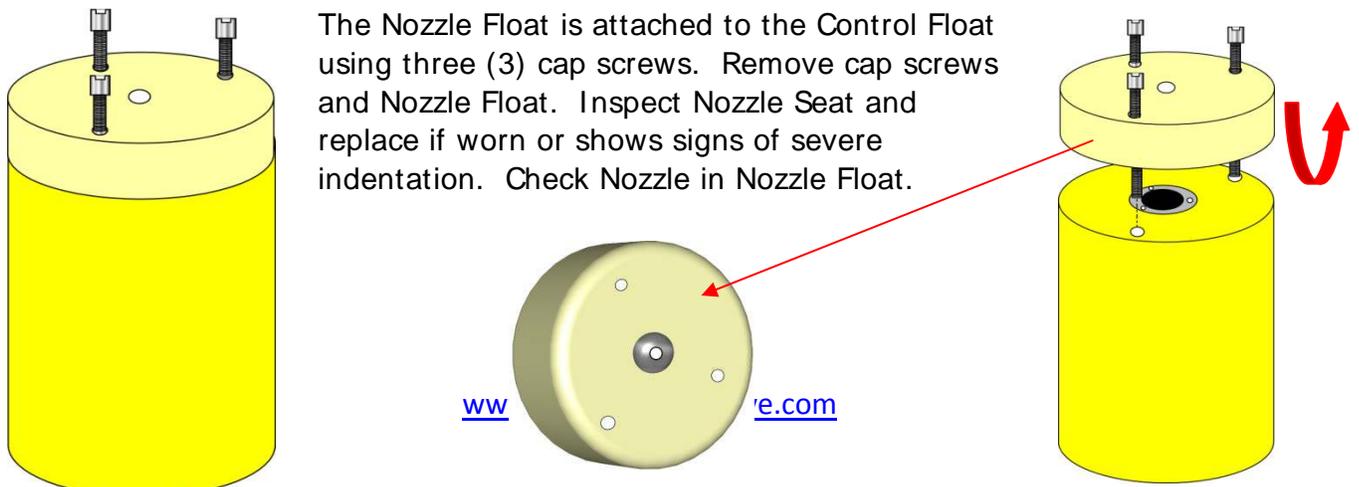


Examine Nozzle Seat (6). If Seat shows signs of wear or indentation remove Nozzle Seat from top of Control Float and replace. Some Nozzle Seats are retained to Control Float with a Nozzle Plate. Remove Nozzle Plate to remove Nozzle Seat.

Examine Nozzle. Nozzle should be firmly secured in Nozzle Float (7).

Larger Valves

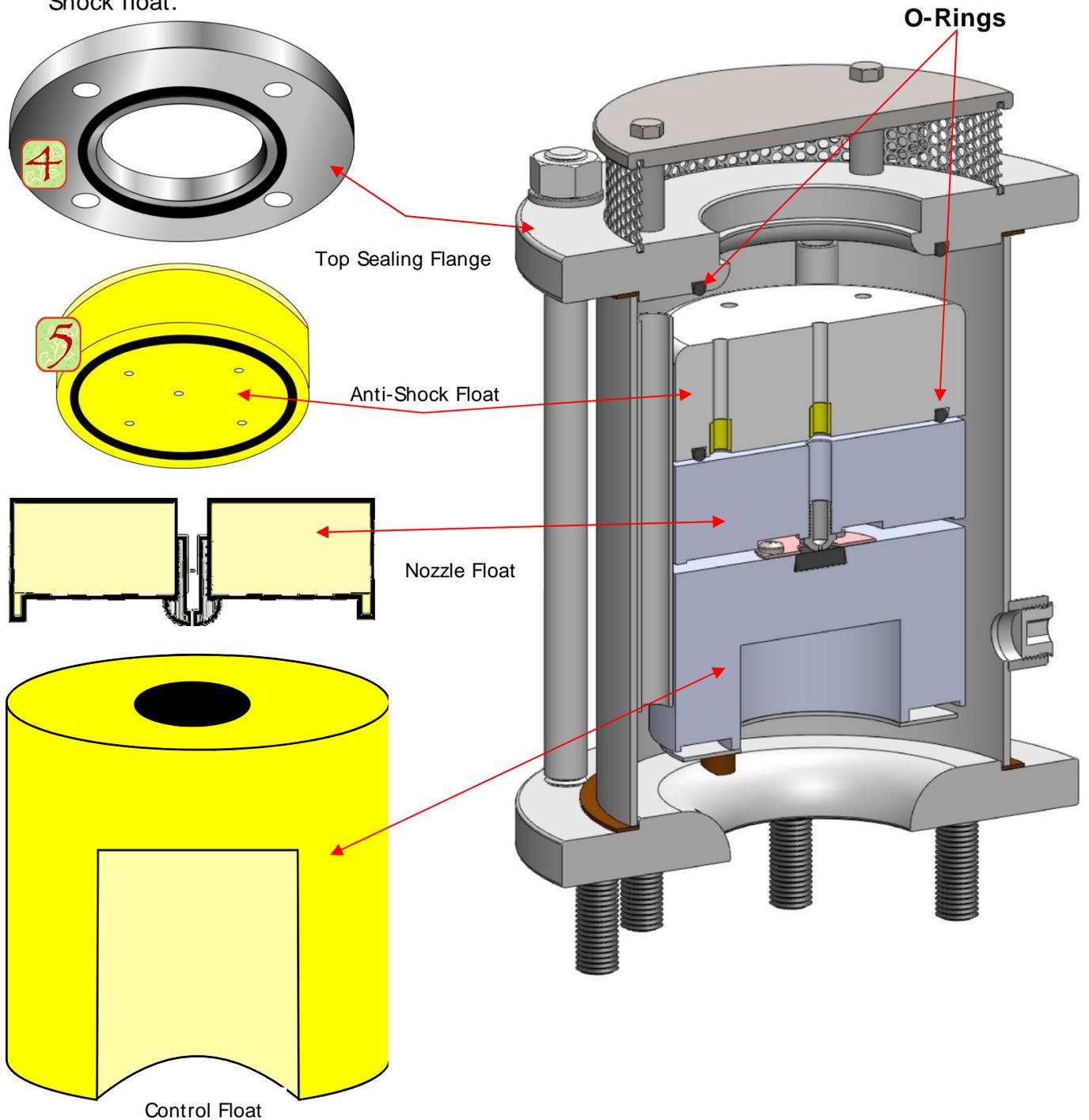
The Nozzle Float is attached to the Control Float using three (3) cap screws. Remove cap screws and Nozzle Float. Inspect Nozzle Seat and replace if worn or shows signs of severe indentation. Check Nozzle in Nozzle Float.



Vent-Tech
WTR-C Valve - 1" - 8"
Owners' Manual

O-Ring Replacement

O-rings will be found on the Sealing Flange and the underside of the Anti-Shock float.



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WTR-C Valve - 1" - 8"
Owners' Manual

Inspect, clean and replace any worn parts. O-rings should be clean, smooth and free of cuts or nicks. Critical to the operation of the valve's compression zone is a clean and flat surface on the Nozzle Seat. If the Nozzle Seat shows sign of deep "nozzle memory" it should be replaced. Nozzle memory is a dimpling of the seat or impression of the nozzle in the rubber seat. With all internal parts inspected and cleaned the valve may be assembled following these steps:

1. Insert Nozzle Seat in Control Float (if it has been replaced)
2. Assemble Nozzle Float (if nozzle has been replaced wrap nozzle threads with pipe tape)
3. Assemble Anti-Shock float if O-ring needed replacement. O-Ring on Anti-Shock Float is on the "bottom" of the float.
4. On valve body replace fiber gasket on bottom flange.
5. Place Valve Body onto flange.
6. Insert Control Float, Nozzle Float and Anti-Shock Float. (O-Ring Down!)
7. Attach fiber gasket to under-side of top flange.
8. Lower top flange with fiber gasket attached over valve body tie rods.
9. Hand tighten nuts/bolts in a 12 O'clock, 6-O'clock, 3- O'clock and 9-O'clock fashion. Hand tighten remaining nuts/bolts.
10. Inspect flange matting to assure fiber gasket has not moved out of center
11. Follow standard flange tightening procedures,
12. If side relief port was opened, apply sealing tape to gauge port plug and tighten plug into valve port. Do NOT overtighten.

Operation:

1. High volume air evacuation while pipeline fills
2. High volume vacuum relief during pump shutdown
3. Discharge of air/gas from pressurized pipeline
4. Surge abatement for high velocity start up conditions, column separation and fluid oscillation

Warranty:

International Valve Marketing ('Company') guarantees that the goods supplied will conform to specifications and to any requirements specifically accepted by

Vent-Tech
WTR-C Valve - 1"- 8"
Owners' Manual

the Company in writing in regard to each order. Except as stated in the preceding sentence, the Company gives no warranty, express or implied, of the material workmanship or fitness of goods for any particular purpose whether such purpose is known to the Company or not.

In accordance with the specifications or requirements included herein, should defects under proper use appear in the goods within a period of 12 (twelve) calendar months after the goods have been delivered, which is caused solely by faulty design, materials, or workmanship, the Company shall, if requested to do so within a reasonable time, but not later than 18 (eighteen) calendar months from date of delivery, repair such goods or the defective parts thereof, free of charge by supplying other goods or replacement parts at the initial place of delivery which do comply with specifications or requirements aforesaid and/or which are free of the defects identified in the complaint.

The above factory warranty is further extended by International Valve Marketing to specifically extend the aforesaid Valve Warranty to 12 (twelve) calendar months to include an additional 108 (one hundred eight) calendar months for a total warranty timeframe of ten (ten) years, or 120 (one hundred twenty months) from date of delivery. Additionally, included in this extended warranty, is the express condition that all or any replacement parts shall be delivered free of charge for these calendar months.

It is a condition of this guarantee that: International Valve Marketing be given reasonable time and opportunity to comply with terms of the guarantee/warranty.

Parts:

Description	Contents
O-Ring Repair Kit	An O-Ring Repair Kit includes all O-rings necessary to rebuild the valve. It includes O-rings for all internal floats and the sealing flange.
Rebuild Kit	The Rebuild Kit includes all O-rings as above and includes a nozzle assembly of nozzle seat, small nozzle.
Float Assembly	The Float Assembly replaces ALL internal parts of the valve. This includes all floats, O-rings and a Nozzle Assembly when needed.