ZURN ZER-HYD Series Automatic Sensor Operated Gear Driven Type Flush Valves Instruction Manual

Contents

ZURN ZER-HYD Series Automatic Sensor Operated Gear Driven Type Flush Valves

Water Closet Battery Models:

- ZER6000AV-ONE-HYD 1.1 gpf
- ZER6000AV-HET-HYD 1.28 gpf
- ZER6000AV-WS1-HYD 1.6 gpf
- ZER6000AV-DF-HYD 1.1/1.6 gpf
- ZER6000AV-DF-HET 1.1/1.28 gpf

Urinal Battery Models:

- ZER6003AV-ULF-HYD 0.125 gpf
- ZER6003AV-EWS-HYD 0.5 gpf
- ZER6003AV-WS1-HYD 1.0 gpf

Compliance:

- ADA Compliant
- ASSE 1037/ASME A112.1037/CSA B125.37
- cUPC
- Texas Accessibility Standard (TAS)
- WaterSense Compliant
- **WARNING:** Cancer and Reproductive Harm – **www.P65Warnings.ca.gov**

LIMITED WARRANTY

All goods sold hereunder are warranted to be free from defects in material and factory workmanship for a period of three years from the date of purchase. Decorative finishes warranted for one year. We will replace at no costs

goods that prove defective provided we are notified in writing of such defect and the goods are returned to us prepaid at Sanford, NC, with evidence that they have been properly maintained and used in accordance with instructions. We shall not be responsible for any labor charges or any loss, injury or damages whatsoever, including incidental or consequential damages. The sole and exclusive remedy shall be limited to the replacement of the defective goods. Before installation and use, the purchaser shall determine the suitability of the product for his intended use and the purchaser assumes all risk and liability whatever in connection therewith. Where permitted by law, the implied warranty of merchantability is expressly excluded. If the products sold hereunder are “consumer products,” the implied warranty of merchantability is limited to a period of three years and shall be limited solely to the replacement of the defective goods. All weights stated in our catalogs and lists are approximate and are not guaranteed.

NOTICE: READ ENTIRE MANUAL PRIOR TO INSTALLING PRODUCT

FCC STATEMENT

Electronic emission notices
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The following information refers to Zurn Smart Connected Products, types: -W2. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference intended for use in non-residential/non-domestic environments. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Zurn is not responsible for any radio or television interference caused by using other than specified or recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user’s authority to operate the equipment.

User manual notice
This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’s license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Warning the user to maintain 20cm of separation from the device

Specifications

- **Sensor Range**: 12” to 60” (adjustable)
- **Voltage**: 3.2 VDC Rechargeable (LiFePO) Battery with 3.0 VDC Backup batteries [2 “AA” 1.5V Alkaline Cells in

Series]

- **Operating Water Pressure**: 25 psi [172 kPa] (Running); 80 Psi [552 kPa] Max (Static)
- **Operating Temperature:** 35°F to 104°F [2°C to 40°C]

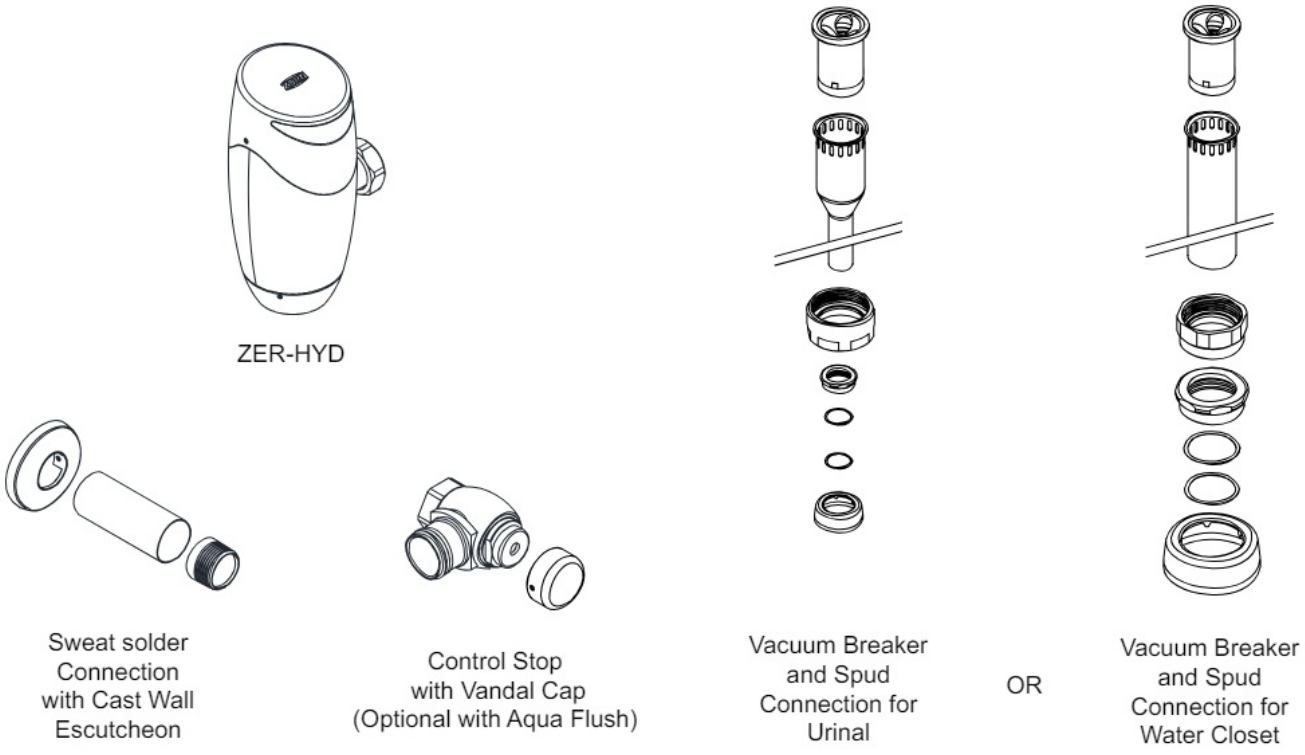
Important Safety Information

- Do not convert or modify this Zurn product. All warranties will be voided.
- All plumbing is to be installed per applicable codes and regulations.
- Water supply lines must be sized to provide an adequate volume of water for each fixture.
- Flush all water lines prior to making connections.
- Do not use pipe sealant or plumbing grease on any fitting other than the control stop inlet.
- Sensor units should not be located across from each other or near highly reflective surfaces.
- The control stop should never be opened to allow flow greater than the fixture is capable of evacuating. In the event of valve failure, fixture must be able to handle a continuous flow.

Prior to Installation

- Before installing your flush valve, the items listed below should already be installed on-site:
  - Water closet or urinal fixture
  - Fixture carrier
  - Drain line
  - Water supply line

Package Contents

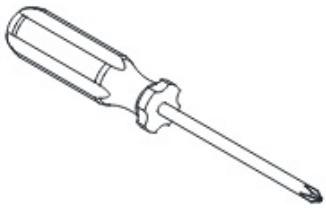


NOTE: The information in this manual is subject to change at any time without notice. Installations may be performed at different times of construction by different individuals. For this reason, these instructions should be

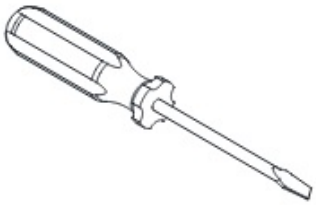
left on-site with the facility or maintenance manager.

Required Tools

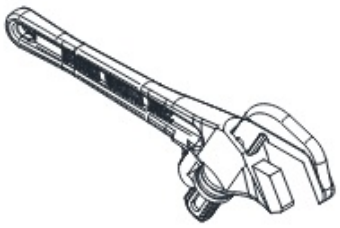
3/32”, 5/64”
Hex Key
(Supplied)



Phillips Head
Screwdriver

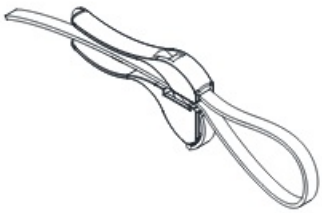


Flat Head
Screwdriver



Smooth Jawed
Wrench

Optional Accessories



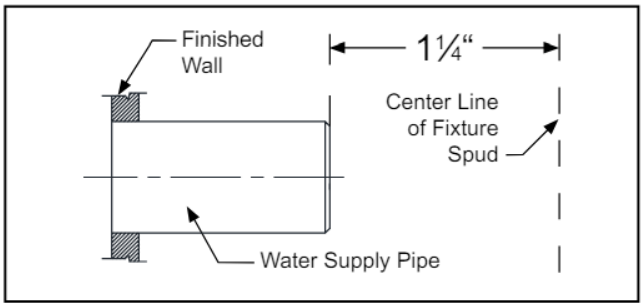
Strap Wrench

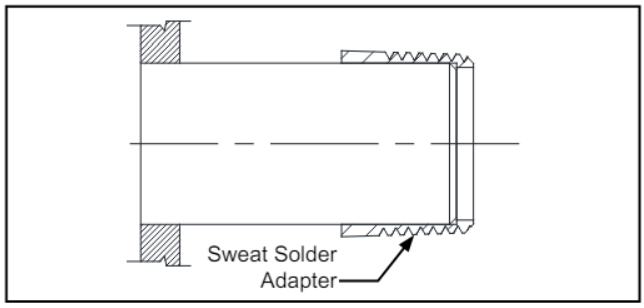
Magic Magnet
P6900-AT-MAG

Sweat Solder Adapter Installation Instructions

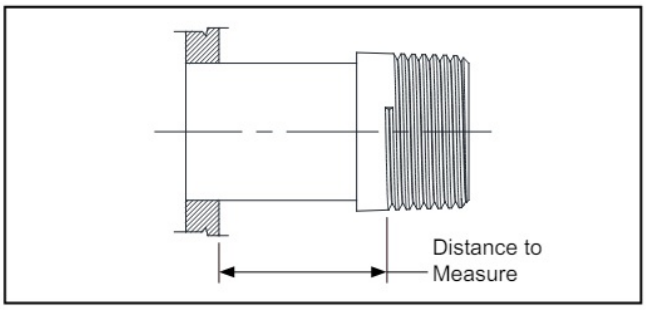
NOTE: Before installation, turn off water supplies to the existing fixture and remove the flushometer if replacing an existing device.

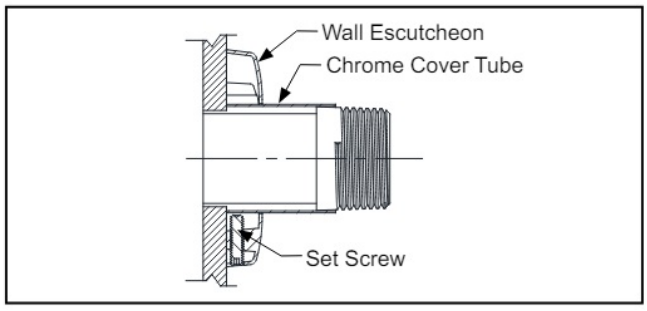
1. Measure the distance from finished wall to the center line of the fixture spud. If necessary, cut the water supply pipe 1-1/4” shorter than this measurement. De-burr by chamfering O.D. and I.D of end of water supply pipe.
2. Slide threaded sweat solder adapter onto water supply pipe until shoulder stops on end of pipe. Then sweat-solder the adapter to water supply pipe.





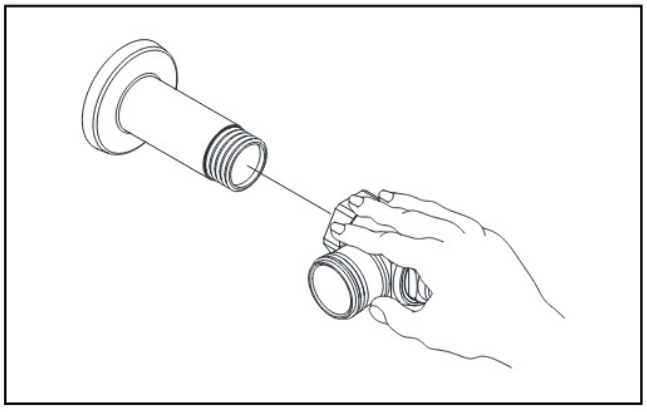
3. Measure the distance from the finished wall to the first thread of the sweat solder adapter. If necessary, cut chrome cover tube this length.
4. Slide the wall escutcheon over the chrome cover tube and slide both items over water supply pipe. Press wall escutcheon flush against finished wall and tighten set screw with hex wrench (supplied) to secure it in place.

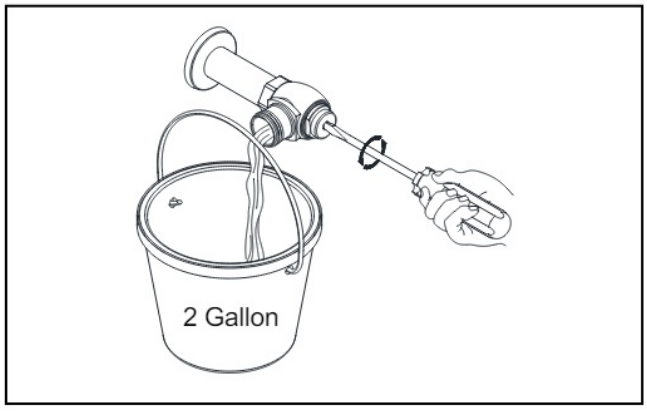




Control Stop Installation Instructions

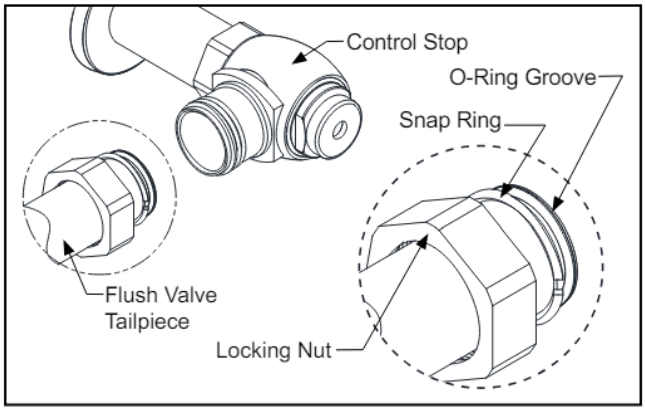
1. Install control stop assembly by threading it onto water supply pipe and tightening with a smooth jawed wrench. Apply thread sealing compound or pipe tape to the male NPT thread on sweat solder adapter only.
2. When all stop valves are properly connected to the water supply line and water pressure is available open the control stop using a flathead screwdriver and turning the stop valve adjustment screw counterclockwise.

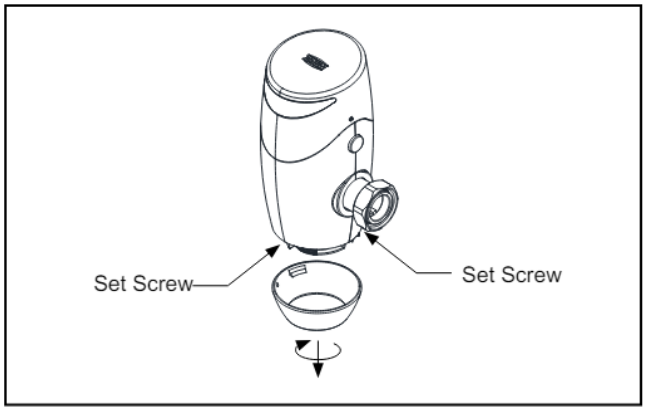




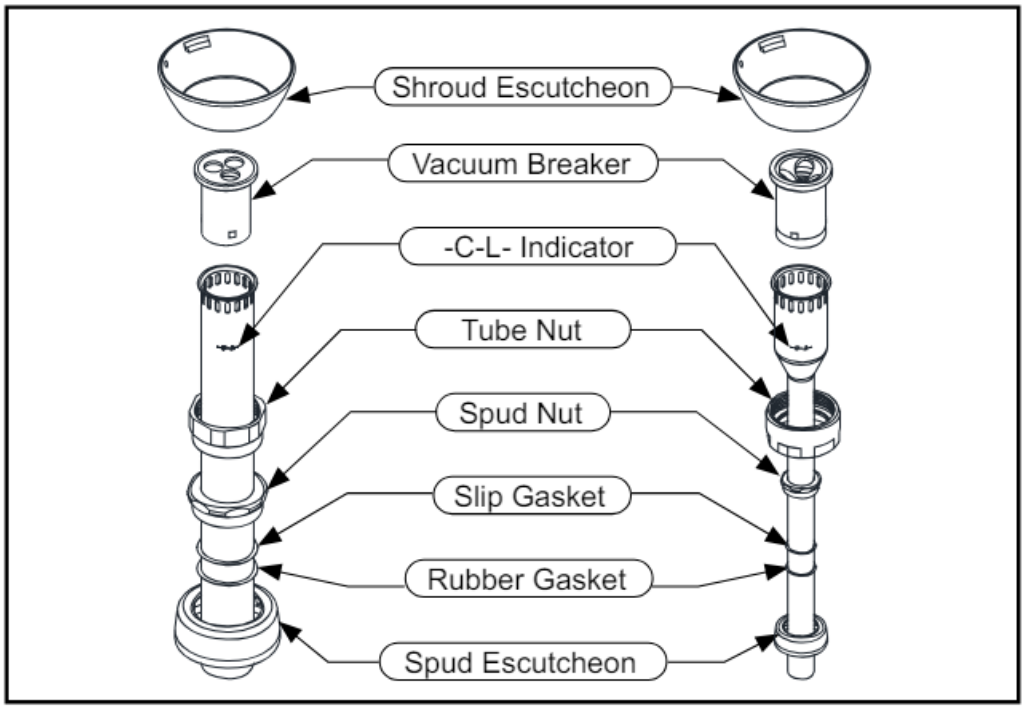
Flush Valve Installation

1. Before attaching the flush valve tailpiece to the control stop, check the O-ring seal and ensure it's properly positioned in the groove. Also, make sure the locking nut and locking snap ring are in place on the tailpiece. Lubricate the tailpiece o-ring with water and insert flush valve tailpiece into the control stop valve. Tighten the locking nut using a smooth-jawed wrench.
2. Loosen the set screws through two small holes on the shroud escutcheon by turning counter-clockwise. Uninstall shroud escutcheon from the valve body by turning it counter-clockwise and lower it from the shroud. Determine the length of vacuum breaker tube required to join the flush valve and fixture spud, and cut if necessary.



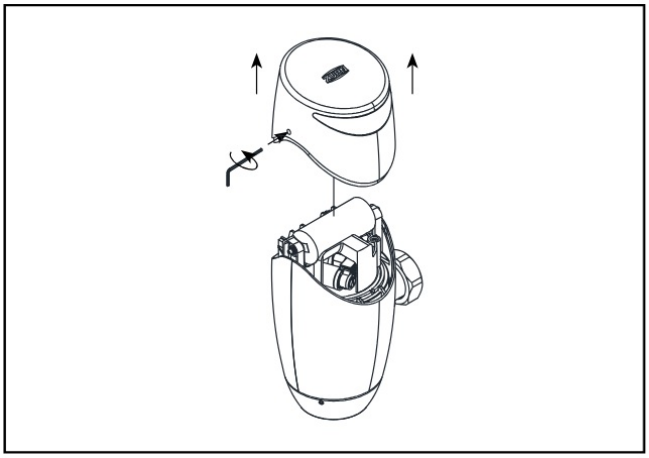


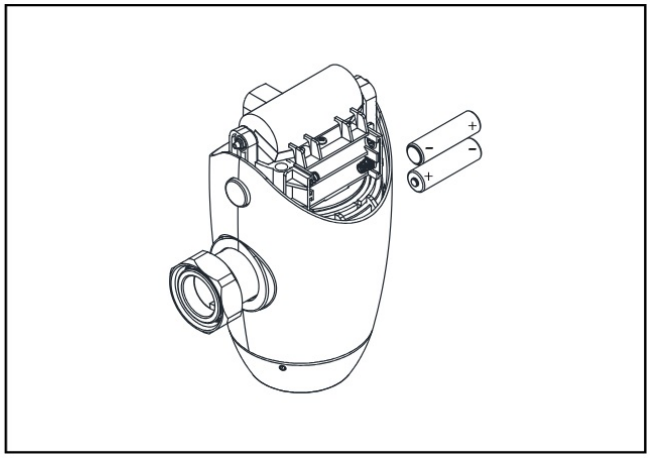
3. Slide the tube nut, spud nut, slip gasket, rubber gasket, spud escutcheon and shroud escutcheon over the vacuum breaker tube and insert tube into fixture spud. Hand tighten tube nut to valve body and hand tighten spud nut onto fixture spud. Adjust the valve assembly for plumb. Tighten fixture spud nut, vacuum breaker tube nut and locking nut with a wrench.
4. Adjust and plumb the valve assembly. Tighten all connections with smooth jawed wrench and turn on water supply at the control stop.
5. Lastly, reinstall the shroud escutcheon back onto the shroud by turning it clockwise and tighten both set screws clockwise to secure escutcheon in place . DO NOT cut vacuum breaker tube shorter than 6" below the -C-Lindicator mark, as vacuum breaker must be 6" above the fixture. Consult plumbing Codes & Regulations for specific details.



Battery Installation

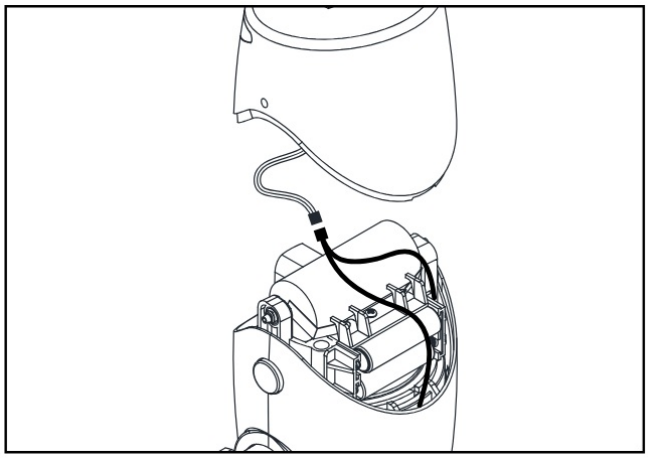
1. Turn both set screw through the small holes on the side of the valve head counterclockwise with the 3/32” Allen Wrench until they are back into the valve head. Then, remove the valve head by lifting it up.
2. As shown, insert 2 AA Alkaline batteries (supplied) into the battery tray as backup batteries.

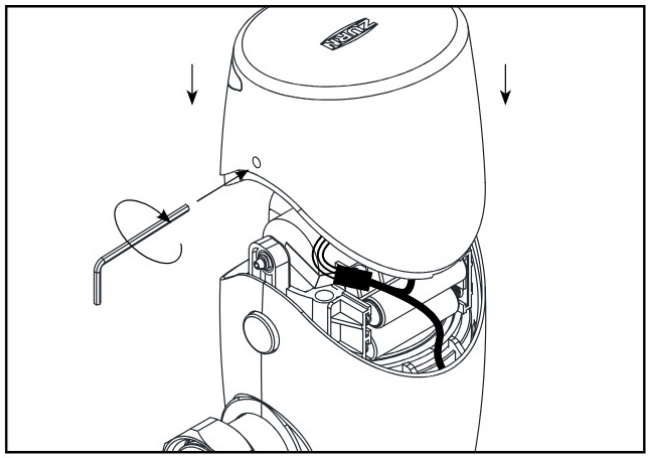




Wire Harness Connection – Right Side Water Supply

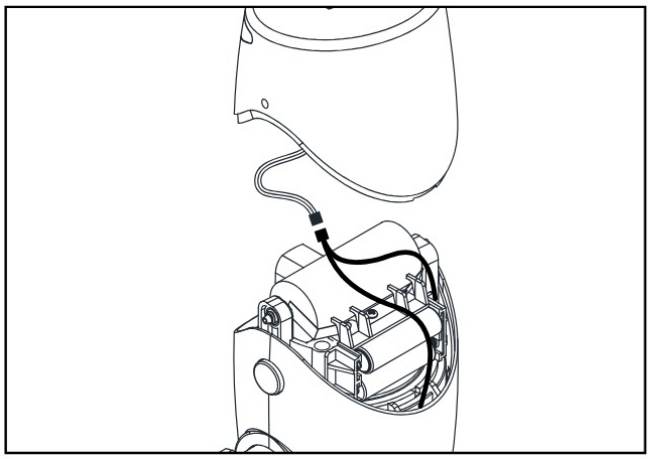
1. Connect the connector from the valve head to the connector from the valve body carefully.
2. Bundle the connected cable harness up neatly place in the area above the backup battery tray and slowly lower the valve head back on to valve body. Reinstall the valve head back onto the valve body by reversing step 1 in the battery installation instructions.

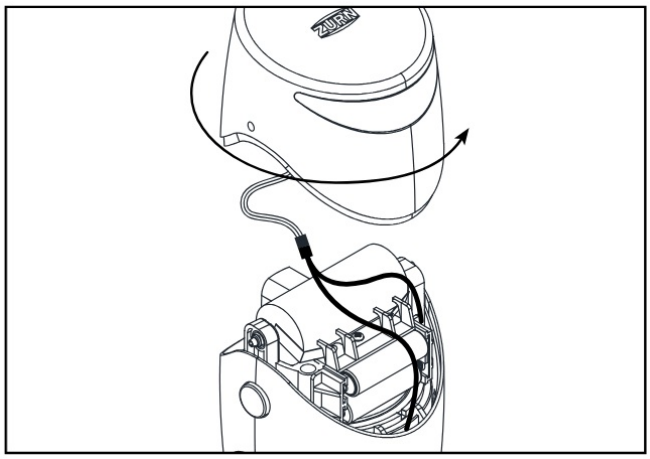




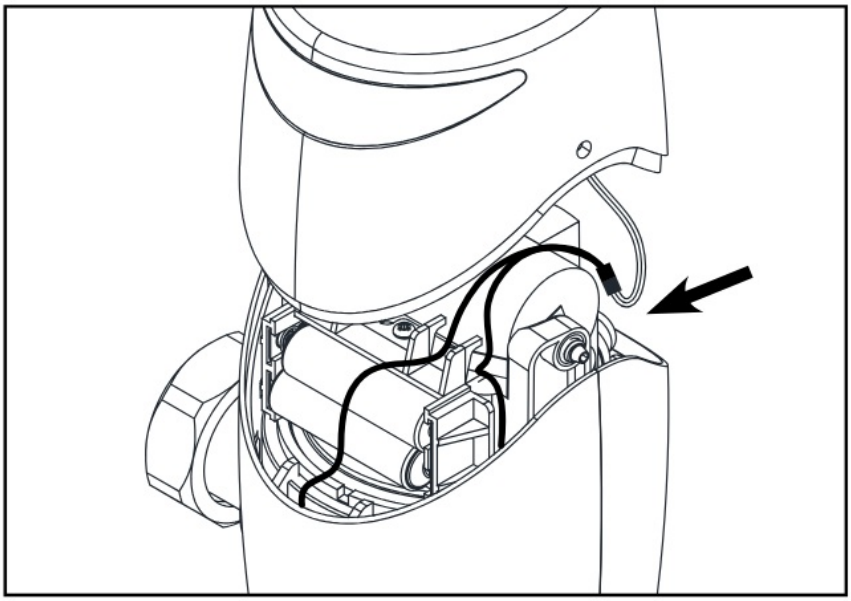
Wire Harness Connection – Left Side Water Supply

1. Connect the connector from the valve head to the connector from the valve body carefully.
2. Rotate the valve head to have the sensor lens facing the front.





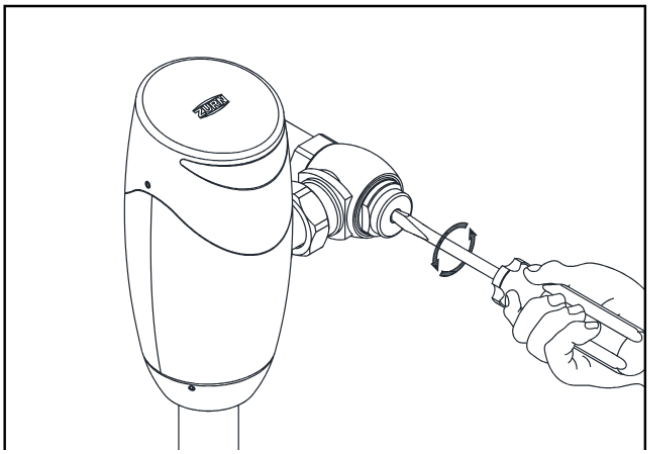
3. Bundle the wire harness neatly and flat across the rechargeable battery and position the connectors in the vacant area shown. Next, slowly lower the valve head back onto the valve body. Reinstall the valve head back onto valve body by reversing step 1 in battery installation instructions.

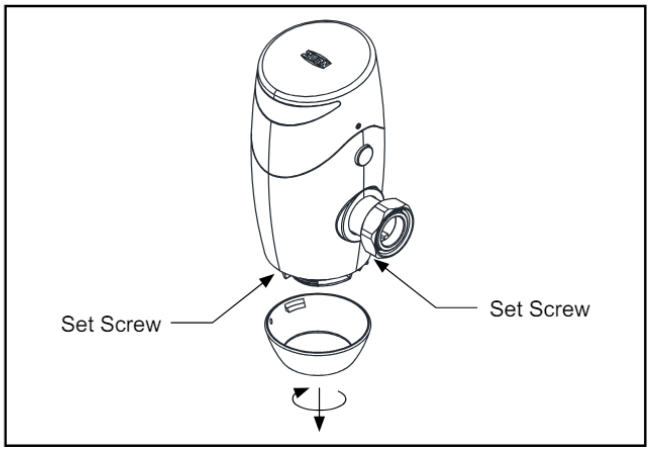


4. Follow right hand installation instructions to install a flush valve with the sensor lens facing the back wall up to the Harness Connection step.

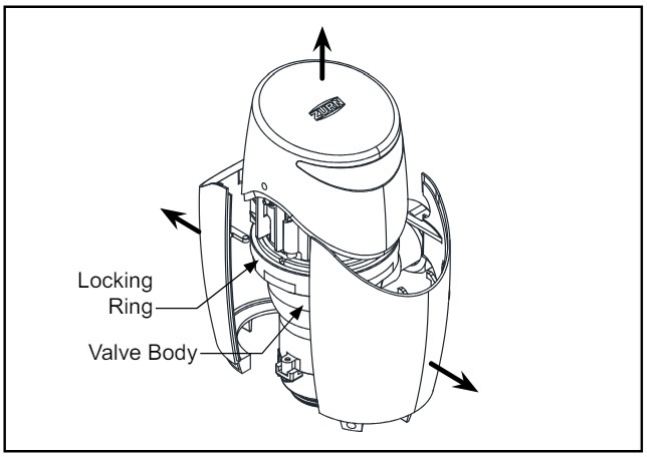
Diaphragm Replacement and Cleaning

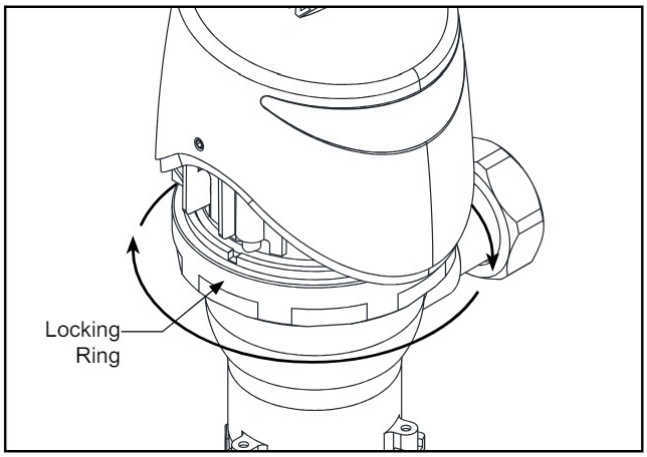
1. Turn off control stop using a flathead screwdriver turning clockwise. Afterward, utilize the manual override button to flush water out of the flush valve.
2. Loosen the set screws through two small holes on the shroud escutcheon by turning counter-clockwise. Uninstall the shroud escutcheon from the valve body by turning it counter-clockwise and lowering it from the shroud.





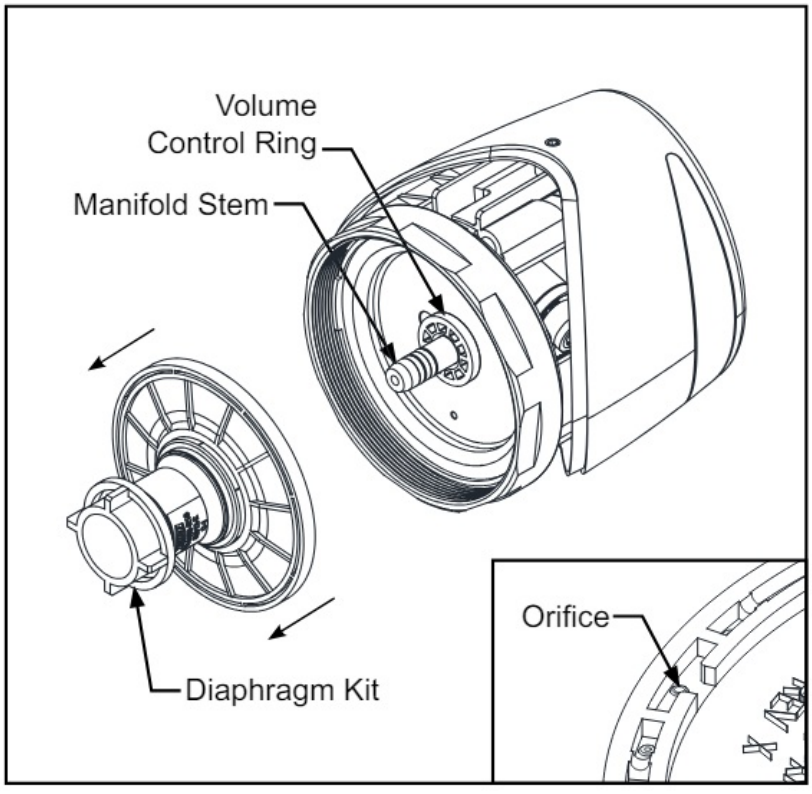
3. Lift the valve head slightly to release the two shrouds. Move the shrouds away from each other at the same time to remove them from the valve body. Use tape or a marker to mark the original position of the locking ring about the valve body.
4. Ensure both the strap wrench and locking ring are completely dry for optimal grip. Use the supplied strap wrench to counter-clockwise loosen the valve head's locking ring. If the strap wrench is slipping, you may use a large wrench on the flats of the locking ring to loosen it.





Diaphragm Replacement and Cleaning (Cont.)

5. 5. Remove the existing diaphragm kit from the manifold stem. Thoroughly wash the diaphragm and orifice using water. Install the cleaned diaphragm back into the valve body, and ensure that the orifice is facing the correct orientation. For the correct orifice orientation, Refer to the retrofit installation instruction section. If the issue persists after cleaning, proceed to step 5B. Do not damage or enlarge the orifice. Doing so will result in an incorrect flush rate.
    - Remove the existing diaphragm kit from the manifold stem. If the o-rings show signs of wear or damage, replace them with the new ones provided in the diaphragm repair kit. Install a new diaphragm kit (with matching flow rate) into the valve body, and ensure that both orifices are positioned in line with the control stop. Take care to align it properly. Note that unless the Volume Control Ring is missing or broken, there is no need to replace it.
6. Place the valve head with the diaphragm kit back onto the valve body. Ensure that both the strap wrench and locking ring are dry for a better grip. Tighten the locking ring to its original position using the supplied strap wrench by turning it clockwise.
7. Reverse steps 2 & 3 to reinstall both shrouds and shroud escutcheon. Turn the control stop back on by turning counterclockwise using a flathead screwdriver.

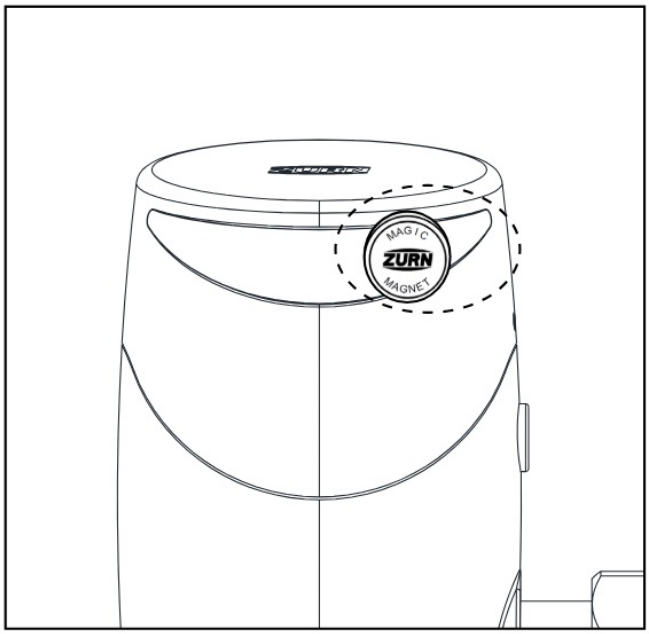


Sensor Range Adjustment

To ensure optimal performance in various restroom environments, each ZER-HYD is initially calibrated at the factory. However, in situations where there is low light or high reflectivity, it might be necessary to make adjustments to the calibration distance of the unit. This can be done using a Magic Magnet (P6900-AT-MAG). Follow the steps outlined below to re-calibrate the ZER-HYD using a Magic Magnet (P6900-AT-MAG):

1. Stand at the desired calibration distance:
    - ~28” from the sensor in a water closet application.
    - ~22” from the sensor in a urinal application.
2. Place Magic Magnet to the right of the ZER-HYD’s lens within the indicated area. Hold the Magic Magnet in that position until the user LED lights up.
3. Maintain the position of the Magic Magnet until the user LED starts blinking. Once the blinking begins, remove the Magic Magnet and allow the user LED to blink 10 times while remaining in the same position. A quick double-blink of the user LED indicates that the calibration process is complete.
4. To verify the new calibration distance, step away from the unit for 5 seconds. Then return to the exact position at which it was calibrated and observe the user LED. If the user LED blinks, it indicates that the calibration distance has been successfully calibrated.

Note: To ensure proper functionality, make sure the calibration distance in water closet applications prevents the sensor from detecting the stall door. Verify this by closing the door for 10 seconds, then opening it. If the flush valve doesn’t activate, the calibration distance is suitable. Otherwise, recalibrate to a closer distance using the magnet.



Care and Cleaning Instruction

- Do not use any abrasive or chemical cleaners to clean the flushometer.
- The suggested cleaning of chrome-plated surfaces is simply to clean them with mild soap and water, then dry. Commercial cleaning compounds are never recommended.
- Upon cleaning other areas of the restroom, be sure the sensor lenses are protected from other cleaning chemicals/solvents to prevent potential damage to the sensor and/or electronics.
- Valves used in installations subject to shutdown because of cold and freezing conditions should be maintained in the following manner. After the main supply has been shut off and the water drained from the system, remove

the stop valve cap and stop valve internals to allow the water to drain from the flush valve itself.

Dual Flush User Guide (For ZER6000AV-DF Only)

- The Dual Flush model supplies flush volumes of 1.1 and 1.6 gallons per flush. When a user is present for less than 60 seconds, the valve will flush with 1.1 gallons of water. When a user is present for over 60 seconds, the valve consumes 1.6 gallons of water. A user must be present for a minimum of 8 seconds to trigger a flush.
- The Dual Flush model must be paired with a fixture with a flush volume range that includes 1.1 to 1.6 gallons per flush. For a list of recommended bowls, please refer to our website, www.zurn.com, or speak with your local Zurn rep.

Trouble Shooting Guide

Problem	Indicator	Cause	Corrective Action
	No water flushed.	The stop valve is closed	Open stop valve
	Sensor flashes 5 time s in quick succession	Flush cycle did not complete	Contact Customer Service for further instruction
	No sensor light	Batteries not making contact	Remove and reinstall batterie s correctly, or replace batterie s See Battery installation for r eference.
		Critically low battery voltage	
	Sensor flashes once e very 5 seconds	Low battery voltage indication	
	Sensor flashes every 30 seconds	Continuous user detection of objects within sensor range	Recalibrate. See the Sensor Range adjustment section for reference.
	Sensor flashes rapidly	Battery Powered: Batteries installed incorrectly.	Remove and reinstall batterie s correctly. See Battery install ation for reference.
		Hardwired: Backup batteries installed inc orrectly	Remove and reinstall batterie s correctly. See Battery install ation for reference.
		Hardwired: The backup Battery was not d etected.	Install backup batteries, or ref erence the courtesy flush & b attery detection settings secti on to turn off backup battery d etection.

The flush valve does not flush.	The sensor detects user, three slow flashes & two quick flashs, but fails to flush upon exiting sensor range	The user/object still in the sensor field	Identify and remove any user from sensor field
			Reduce sensor range distance (see Sensor Range Adjustment instructions)
		Battery power level too low to activate flush valve	Replace batteries. See Battery Installa-Installationrence.
		Dirty sensor lens	Clean the sensor lens with warm water and mild soap until free of debris
		Loose or damaged wire harness	Inspect wire harness and connection between electronics and motor
	User not detected; no LED flashes.	Sensor range may need to be adjusted	Increase sensor range distance (see Sensor Range Adjustment instructions)
		The flush valve is aimed at an angle.	Rotate the flush valve head to be perpendicular to the wall. See the Sensor Angle Adjustment section for adjusting the flush valve head.
	The manual override button does not initiate a flush.	The stop valve is closed/turned off.	Turn on the stop valve.
		MOB does not depress	Contact Customer Service.
	Insufficient volume of water to adequately siphon fixture.	The stop valve is not open enough.	Open the stop valve for the desired volume of water.
		Insufficient volume or pressure at supply.	Increase incoming water supply pressure to a minimum of 25psi.
		Insufficient volume for installed fixture	Contact Customer Service.
		Damaged or punctured diaphragm.	Install a new diaphragm replacement kit. (See Diaphragm Replacement and Cleaning Section for replacement instructions)

Valve does not evacuate fixture	The valve shuts off too quickly or short flushes.	Enlarged by-pass orifice.	Install new diaphragm replacement. (See Diaphragm Replacement and Cleaning Section for replacement instructions)
		The diaphragm kit is not matched to the fixture.	Install a new diaphragm replacement kit. (See Diaphragm Replacement and Cleaning Section for replacement instructions)

Problem	Indicator	Cause	Corrective Action
The valve is flushing too long or not shutting off.	High water delivery or continuous flow.	By-pass orifice is plugged or partially plugged.	Examine the by-pass orifice and clean it if necessary being certain not to enlarge the orifice opening. (See Diaphragm Replacement and Cleaning Section for cleaning instructions)
Water splashes out of the fixture.	Water splashes onto the floor during the flush cycle.	Supply volume is too high.	Slowly close the control stop to lower the water pressure.
		Mineral accumulation on vortex or spreader holes of the fixture.	Remove the mineral buildup.
Flush is not considered quiet.	Flush is loud.	Control stop may not be adjusted for quiet operation.	Adjust the control stop for quiet operation keeping in mind the fixture evacuation requirements.
		The fixture may be contributing to the noise.	Check the noise created by the fixture by placing a cover over the bowl opening to separate valve noise from bowl noise. If it is determined the fixture is too noisy, consult with the fixture manufacturer.
		The piping system may be a source of noise.	High pressure in the system can sometimes be controlled by the stop valve. Other sources of noise may be the absence of air chambers and shock arrestors, loose pipes, improper-sized pipes, etc. In these cases, the building engineer should be consulted.
Valve leaking near valve head.	Water droplets are seen between the valve head and the valve body.	The locking ring is not tight.	Tighten the locking ring. See the Sensor Angle Adjustment section for reference.
The valve flushed with no user present	The valve flushed with no user present	Highly reflective environment	Re-calibrate sensor range – see Sensor Range Adjustment section
		Sensor range set too far; picking up other objects	
		The flush valve may be configured to exchange the water in the trap-way at every [24 / 48 / 72] hours after no usage (default is OFF).	See Courtesy Flush Battery Detection Settings for instructions on changing dipswitch settings to achieve the desired trap exchange timing.

- Patent zurn.com/patents
- US 1.855.ONE.ZURN CANADA 1.877.892.5216

Documents / Resources

	ZURN ZER-HYD Series Automatic Sensor Operated Gear Driven Type Flush Valves [pdf] Instruction Manual ZER-HYD Series Automatic Sensor Operated Gear Driven Type Flush Valves, ZER-HYD Series, Automatic Sensor Operated Gear Driven Type Flush Valves, Sensor Operated Gear Driven Type Flush Valves, Operated Gear Driven Type Flush Valves, Gear Driven Type Flush Valves, Driven Type Flush Valves, Flush Valves, Valves

References

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- Zurn | Engineered Water Solutions for Plumbing, Drainage
- Patents | Zurn Industries LLC's products
- User Manual