

Project Name: LRCVB Atrium

Reviewer Name: Joshua Brandon

Date: 06/27/2023

Submittal #: 11

Company Name: Wagner General Contractors, Inc.

Status: Reviewed

This review is only for general conformance of the project and general compliance. Contractor is responsible for all dimensions and fabrication to be confirmed and correlated at the job site.



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
P.O. Box 16620
Little Rock, AR 72231
Phone 501-834-3320
Fax 501-834-5416

Date: 6/26/2023

Return Request: 6/30/2023

Project: Little Rock Convention Center – Atrium

Supplier: Falk

Submittal: Plumbing Fixtures Re-Submittal #1

Submittal Number: 22 40 00-01

Drawing # and Installation: Plumbing Drawings

ARCHITECT

Witsell Evans Rasco
901 West Third Street
Little Rock, AR 72201
501-374-5300

ENGINEER

Pettit & Pettit
201 E. Markham, Suite 400
Little Rock, AR 72201
501-374-3731

GENERAL CONTRACTOR

Wagner General Contractor
600 W. Race Ave.
Searcy, AR 72143
501-203-0704

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
N. Little Rock, AR 72117
501-834-3320

Notes:

*Model number for L-1 is #676 which is a discontinued model; #768 is the model that is replacing it.

CSUSA PROJECT NO.

23-1015

jon@comfortar.com

LR Convention Center
East Atrium Renovations

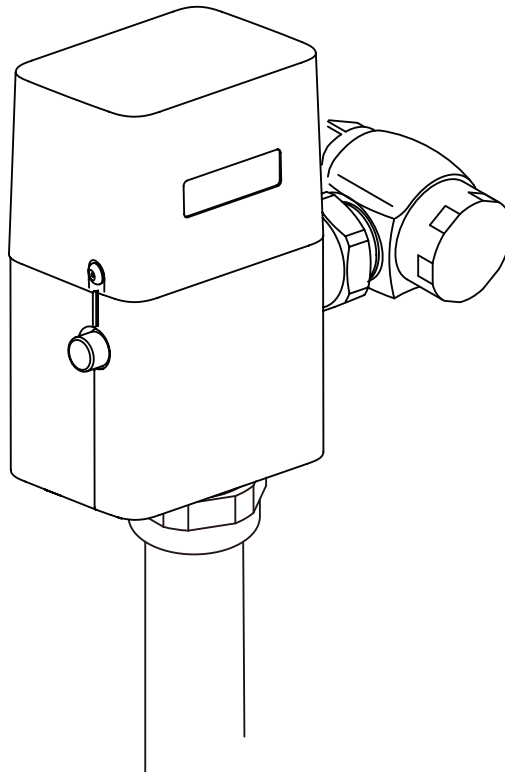
Plumbing
Operations and Maintenance

FLUSH VALVES

Installation and Owner's Manual
Manual de Instrucciones y del Propietario
Manuel d'Installation et d'Utilisation
Manual de Instalação e do Proprietário

TOTO

EcoPower Flush Valve
Fluxómetro EcoPower
Valve de Chasse EcoPower
Fluxómetro Self Power



Warranty Registration and Inquiry

For product warranty registration, TOTO U.S.A. Inc. recommends online warranty registration. Please visit our web site <http://www.totousa.com>. If you have questions regarding warranty policy or coverage, please contact TOTO U.S.A. Inc., Customer Service Department, 1155 Southern Road, Morrow, GA 30260 (888) 295-8134 or (678) 466-1300 when calling from outside of U.S.A.

TABLE OF CONTENTS

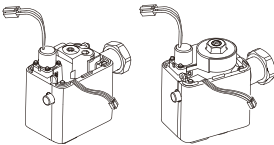



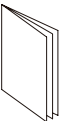
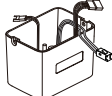

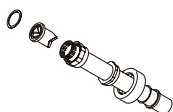

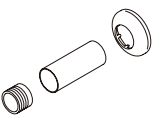
Thanks for Choosing TOTO!.....	2
Included Parts.....	2
Common Tools Needed.....	3
Initializing the Ecopower product	3
Features.....	3
Specifications.....	4
Technical Information.....	5
Warnings.....	6
Before Installation.....	6
Installation Procedure.....	7
Test Run.....	10
Note to the Installer.....	10
Periodic Maintenance.....	10
Care & Cleaning.....	10
Using the Flush Valve.....	11
Troubleshooting.....	12
Warranty.....	16
Rough-In Dimensions.....	62
Reclaimed Water Specifications.....	64

THANKS FOR CHOOSING TOTO!

The mission of TOTO is to provide the world with healthy, hygienic and more comfortable lifestyles. We design every product with the balance of form and function as a guiding principle. Congratulations on your choice.

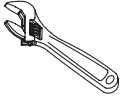
INCLUDED PARTS

Check to make sure you have all these parts from the package*:

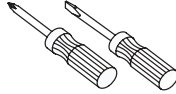
<p><i>TEU1UA(R)(X) all valves except for TEU1UA(R)(X)</i></p>  <p>Valve body assembly</p>	 <p>Back-up Battery Pack</p>	 <p>Screws</p>	 <p>Hex wrench</p>	 <p>Installation and Owner's Manual</p>
 <p>Top cover assembly</p>	<p>For TEU1UA(X)12, TEU1LA(X)(12,22), TEU1GA(12,22), TET1UA(X)32, TET1LA(X)32, TET6LA(X)32, TET1GA32, TET6GA32, TET6UA(X)32</p>			
 <p>Flush valve Notice label</p>	 <p>Vacuum breaker tube (with spud joint)</p>	 <p>Control stop</p>	 <p>Sweat solder kit (Escutcheon, covering tube, Adapter)</p>	

*Appearance of some components may vary depending on the model.

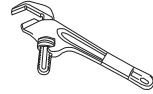
COMMON TOOLS NEEDED



Adjustable wrench



Screwdrivers (Phillips and Slotted)



Offset pipe wrench

INITIALIZING THE ECOPOWER PRODUCT

Thank you for choosing the latest innovation in low power consumption EcoPower products. Please note below the duration of time required to initialize the electronics.

It will take approximately 5 minutes after connecting the battery for the electronics to initialize. This delay is a normal part of startup. After approximately 30 seconds, the sensor LED will start flashing in 4 second intervals until the initialization is complete.

FEATURES

Fully Automatic and Hygienic

The EcoPower Flush Valve uses an infrared sensor to detect the user using and departing the fixture, to provide an automatic flush of the fixture after a short delay. No manual operation is required, improving the experience of use and hygiene of the fixture.

System Protection Timer

When the fixture is not used for 24 hours (12 hours for TEU1LA(R)(X) and TEU1UA(R)(X)) the protection timer commands the system to flush in order to maintain the trap seal.

Manual Functionality

For maintenance and emergency use, the EcoPower Flush Valve is equipped with a manual flushing button.

Green Features

Conserves Power

The flushing of the fixture activates a hydropower generator which generates electric power for the next flush. (See About TOTO's Hydropower Generator, page 5)

Conserves Water

Two functions help the EcoPower Flush Valve conserve water:

Fuzzy Logic Control

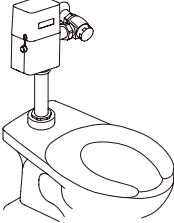
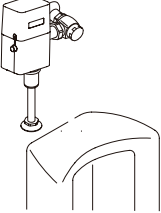
The EcoPower Flush Valve can sense how often and how long the fixture has been used to deliver the correct amount of water. (See About Fuzzy Logic Control, page 5)

Anti Consecutive Flushing

The EcoPower Flush Valve offers water saving consecutive flush prevention. After a flush, the valve will not automatically flush again for 10 seconds for urinals and 30 seconds for toilets.

TOTO EcoPower Flush Valve are designed to work for 10 years, under normal conditions, with no minimum usage required.

SPECIFICATIONS

Figure	Toilet			Urinal		
						
Model Number	TET1GAR TET6GAR	TET1LAR TET1LAX TET6LAR TET6LAX	TET1UAR TET1UAX TET6UAR TET6UAX	TEU1GAR	TEU1LAR TEU1LAX	TEU1UAR TEU1UAX
Rated Flush Volume	1.6 G (6 L)	1.28 G (4.8 L)	1 G (3.8 L)	fuzzy logic adj. flush vol. 0.5 G (1.9L) typical flush vol. 1.0 G (3.8 L)	0.5 G (1.9 L)	0.125 G (0.47 L)
Toilet/Urinal type	Flush Valve type bowl			Wash down flush		
Control stop inlet	1" NPT			3/4" NPT		
Flush Valve inlet	1-1/4" NPSM					
Flush Valve outlet	1-1/2" NPSM					
Supply water pressure	Min (Flowing)	15 psi (103 kPa)	35 psi (241 kPa)	15 psi (103 kPa)		
	Max* (Static)	125 psi (862 kPa)	125 psi (862 kPa)	125 psi (862 kPa)		
Shutoff pressure	7 psi (48 kPa)					
Dimension of cover	7" (H) x 4-9/16" (W) x 3-3/16" (D) (178 mm (H) x 115 mm (W) x 81 mm (D))					
Detection range from the front	Within 33-1/2" (850 mm)					
Detection time	6 seconds					
Trap seal protection	Automatic flush every 24 hours of non-use			Automatic flush every 12 hours of non-use		
Ambient temperature	32-104°F (0-40°C)					
Water temperature	34-104°F (1-40°C)					

NOTE: The type of fixture determines the minimum pressure required for the valve. Consult fixture manufacturer for the pressure requirement. TET6LA(R)(X), TET6GAR, and TET6UA(R)(X) require 24" OR LONGER vacuum breakers. The valve will not have the proper detection range if you use a shorter vacuum breaker.

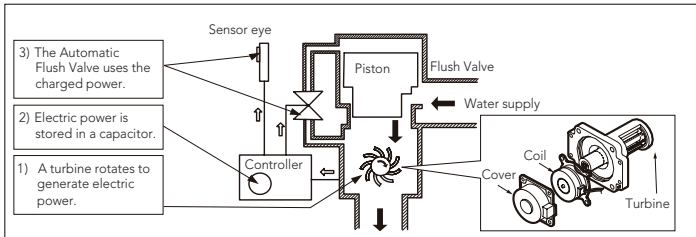
* Water pressures over 80 psi are not recommended for most plumbing fixtures.

TECHNICAL INFORMATION

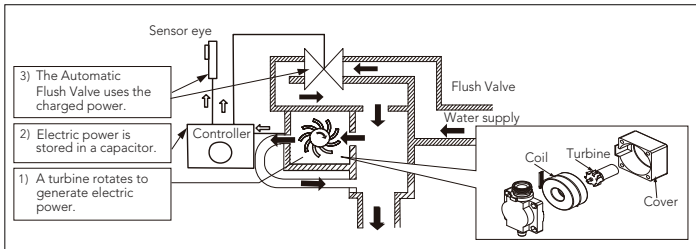
About TOTO's Hydropowered Generator

The flow of water causes the turbine in the power generator to rotate. This process generates electric power and enables the automatic Flush Valve to operate. See ill. 1 below.

TET1GAR
TET6GAR
TEU1GAR
TET1LA(R)(X)
TET6LA(R)(X)
TEU1LA(R)(X)
TET6UA(R)(X)
TET1UA(R)(X)



TEU1UA(R)(X)



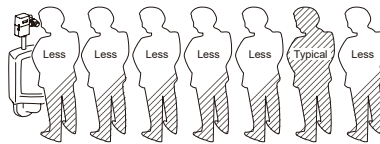
ill. 1 Hydropowered Generator

About Fuzzy Logic Control (TEU1GAR only)

The Fuzzy Logic Control function automatically adjusts the discharge of water according to the frequency and duration of usage (see ill. 2 and ill. 3).

The Fuzzy Logic Control system judges the frequency of usage by the idle time of the fixture and causes the Flush Valve to discharge water in an optimal flushing pattern.

High Frequency of Usage



If the idle time is short, the system assumes frequent use and the Flush Valve discharges less water. Examples of high frequency use would be during a lunch break or an intermission in a movie theatre.

Low Frequency of Usage



If the idle time is long, the system assumes infrequent use, causing the Flush Valve deliver a typical quantity of water for thorough flushing. Examples of low frequency use would be during after hours at the office or a slow day at the park.

ill. 2 Frequency of Usage

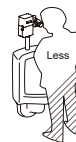
The Fuzzy Logic Control system predicts the quantity of flush water needed based on the user's duration of use.

Long duration of usage



A long duration of use indicates there may be more to flush, requiring the Flush Valve to deliver a typical quantity of flush water for thorough flushing.

Short Duration of Usage



A short duration of use indicates there may be less to flush, requiring the Flush Valve to discharge less flush water.

ill. 3 Duration of Usage

WARNINGS

Please read and adhere to these notes. Failure to do so could result in personal injury and/or property damage.

- Never splash water on the controller. The EcoPower Flush Valve is an electric appliance. Risk of product malfunction.
- Do not strike or kick the EcoPower Flush Valve. Risk of product malfunction or water leakage.
- Do not use the EcoPower Flush Valve at temperatures exceeding what local codes or product specification allow. Risk of product malfunction.
- Do not place an item in a room with high humidity such as shower area or sauna. Risk of product malfunction.
- Never attempt to disassemble, reassemble, repair or modify the EcoPower Flush Valve unless you are a professional. Risk of product malfunction and electric shock.
- Do not use standard vacuum breaker or control stop with reclaimed water flush valve.
- Do not use petroleum based products or pipe sealants, doing so could damage product and cause water damage.

BEFORE INSTALLATION

IMPORTANT: Plumbing installation must be in accordance with applicable codes and regulations. Water supply lines must be sized to provide an adequate volume of water for each fixture. Flush all waterlines prior to operation.

- Toilet and urinal Flush Valves are not interchangeable, check the model number on the label to make sure you have the correct type. Toilet Flush Valve model numbers begin with 'TET' and Urinal Flush Valve model numbers begin with 'TEU'.
- Prior to installing your Flush Valve, install the items listed below:

Bowl fixture/Urinal fixture

Drain line

Water supply line

The supply piping to these devices must be securely anchored to the building structure to prevent the installed device moving during use. Prevent marring to the exposed surface during installation. **IMPORTANT:** Purge all air from the supply lines before connecting flush valve to the bowl. Trapped air in supply lines may crack the china.

Except for TET6GAR, TET6UA(R)(X) and TET6LA(R)(X), install the Flush Valve so the control stop is no less than 11-1/8" (282mm) above the top of the bowl/urinal. For TET6GAR, TET6UA(R)(X) and TET6LA(R)(X), install the Flush Valve such the control stop is 27" (685.8mm) above the bowl/urinal. see local codes for special requirements.

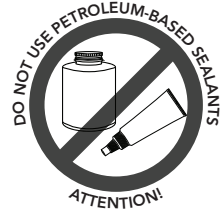
- Avoid damaging the surface of the infrared sensor while unpacking.
- **For Toilet Flush Valve:**
The toilet Flush Valve may not function if toilet seat or lid cover are left upright and block the sensor.
- **For Urinal Flush Valve:**
The urinal Flush Valve is designed for optimal performance with a washout urinal, but a siphon jet urinal may be substituted. Blowout urinals are not recommended.
- **For Reclaimed Water Flush Valve:**
Only use reclaimed water angle stop and vacuum breaker.
- The detection range of the infrared sensor is shown on p.15.
- To prevent valve malfunction, do not install a handrail or any other object within the detection range of the sensor. Do not install the Flush Valve where sensor faces a mirror, stainless steel wall, other highly reflective surfaces or another infrared sensor.

INSTALLATION PROCEDURE

NOTE: For retrofit installation, remove the old Flush Valve after shutting off the control stop.

NOTE: For reclaimed water, do not use standard vacuum breaker or control stop.

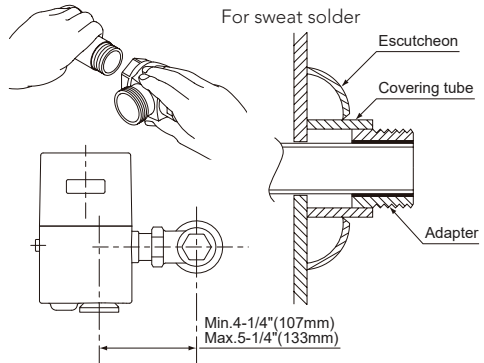
NOTE: Do not use petroleum based products or pipe sealants.



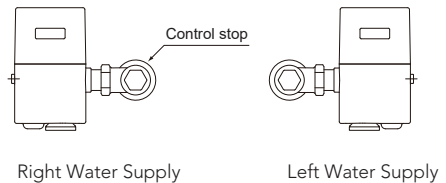
1. Install the control stop using an appropriate size escutcheon and a sweat solder adapter kit, if applicable.

Thread sealing compounds should be used on male NPT threads only.

The distance from center of the control stop to center of the Flush Valve should fall within 4-1/4" to 5-1/4" (107mm to 133mm).

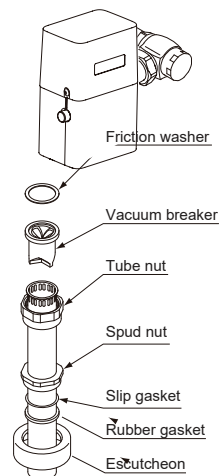


For use with a left water supply, attach the sensor top cover in the opposite direction so that the sensor will be at the front.



2. Determine the length of vacuum breaker tube to join the Flush Valve and fixture spud. If required, cut the vacuum breaker tube to the proper length.

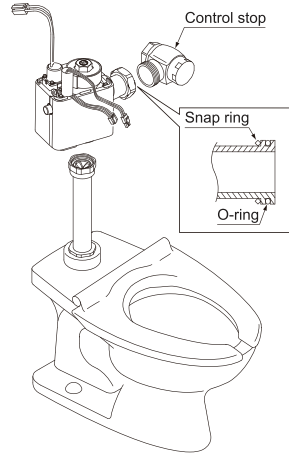
3. Assemble the spud nut assembly to the fixture spud. Hand tighten spud nut to fixture.



INSTALLATION PROCEDURE

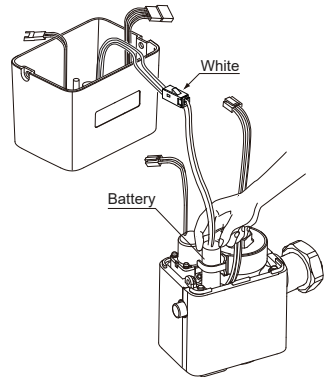
ENGLISH

4. Prior to inserting the Flush Valve tailpiece into the control stop, make sure that the o-ring is in the groove at the end of the tailpiece, the locking nut and the snap ring are located as shown.
5. Connect the Flush Valve with the control stop and the vacuum breaker tube. Exercise care not to damage the o-ring when inserting the tailpiece into the control stop. If lubrication is needed, wetting the o-ring with water is sufficient.
6. Align the Flush Valve and securely tighten fixture spud nut, vacuum breaker tube nut and locking nut with a wrench.

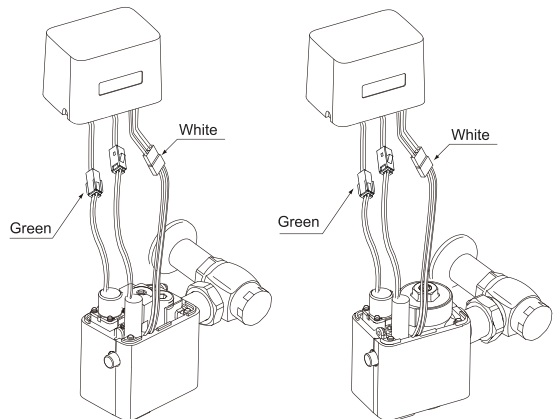


7. Connect the battery cable with that of the controller and set the battery at the proper position.

NOTE: It will take 5 minutes after connecting the battery for the electronics to initialize. After approximately 30 seconds, the sensor LED will flash in 4 second intervals until the initialization completes.



8. Connect the cables of the solenoid valve and generator with those of controller.



TEU1UA(R)(X)

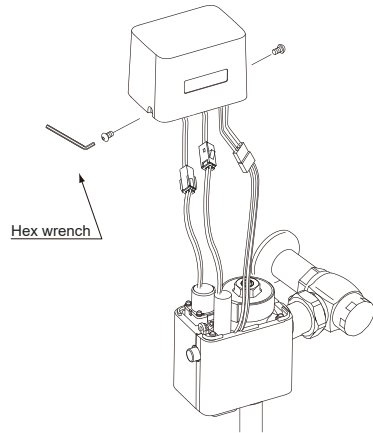
all valves except for
TEU1UA(R)(X)

INSTALLATION PROCEDURE

- Fasten the sensor top cover to body assembly with the supplied screws and hex wrench.

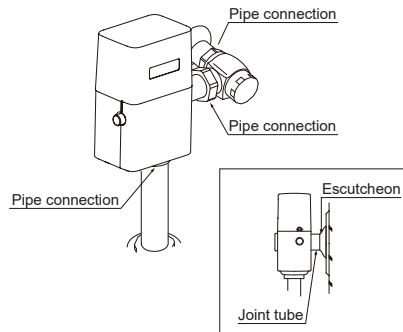


Protect the wire connections inside the top cover.



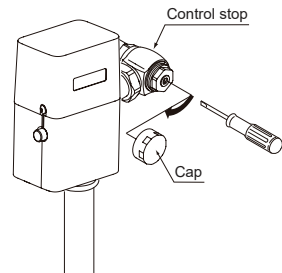
- Before the supply water is turned on, be sure all water leaks are eliminated by tightening all the pipe connections.

NOTE: If for any reason it becomes necessary to remove the control stop, make sure the water is shut off at the main supply valve.



The Flush Valves are preset for fixture volume as marked on the valve carton. The valve does not require adjustment for variation in water pressure within its operating range.

- To set the Flush Valve for proper operation, open the control stop completely by using the adjusting screw.
- Activate the Flush Valve several times.
- In the case of excessive flow rate, gradually adjust the control stop towards the closed position using the adjusting screw, until there is suitable water flow into the fixture.
- The cap for the control stop should be placed after final adjustments have been made.
- Tighten the cap firmly with a wrench.



WARNING: Do not open the control stop to the point where the flow from the Flush Valve exceeds the flow capability of the fixture. In case of a valve failure, the water must not overflow from the fixture.

TEST RUN

After connecting the battery, the initialization process takes 5 minutes. After approximately 30 seconds, the sensor LED will start flashing in 4 second intervals until the initialization is complete. Please wait before starting the Test Run.

1. **For Toilet:** Sit on the toilet seat.
For Urinal: Stand within two feet from the front of the Flush Valve.
2. Stay there for 6 seconds or more and then leave the toilet seat or the urinal. The valve should automatically flush, immediately for urinals and after 3 seconds for toilets.
3. Press the manual flushing button for 2 seconds and make sure the valve flushes properly and the sensor red light of the sensor is on. To correct overflow from a urinal Flush Valve, adjust the control stop clockwise.
4. Recheck all the pipe connections for water leaks. If the Flush Valve is not operating properly following the test run consult the Troubleshooting section on p.12.

NOTE TO THE INSTALLER

After the Flush Valve unit has been installed correctly, please explain to your customer how to use it and tell them to observe the following instructions:

1. Do not put any object in front of the sensor window which could obstruct the sensor, causing it to malfunction.
2. In case of any trouble, consult the troubleshooting section on p.12. If you lack the necessary skills required or have difficulty following the directions for installation, maintenance, repairs, troubleshooting or adjustments of the product, do not proceed without help from a qualified person to assist you.

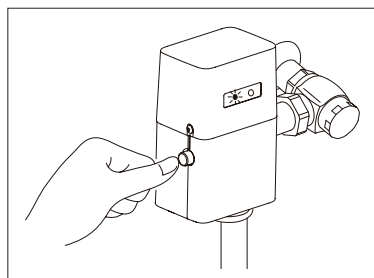
PERIODIC MAINTENANCE

Please check your EcoPower Flush Valve at least once a month according to the following instructions to avoid risk of property damage.

Check the piping to see whether there is any leakage.

Press the manual flushing button and make sure the sensor red light is on for 2 seconds to see if the generator performs properly or not.

If the red light is not on, check the generator to see if any debris is clogged up at the turbine.



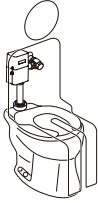


CARE & CLEANING

IMPORTANT! Do not scratch the sensor or faceplate when cleaning.


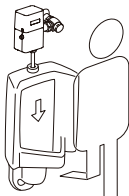

- Avoid using any cleaning materials that may scratch the surface.
- Never use polishing powder, detergent that includes coarse particles, thinners, benzene, acids, alkaline detergents, or nylon scrub brushes.
- To safely clean the surface, wipe it using a dampened soft cloth with diluted dishwashing detergent and dry it with another soft cloth. If this does not adequately clean the surface, wipe the area with a neutral detergent and wet cloth.

USING THE FLUSH VALVE

■ Using the Toilet Flush Valve

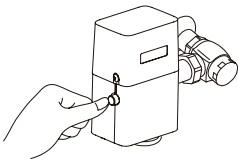
Infrared Sensor	Flushing	Flushing Every 24 hours
 <p>The infrared sensor detects a user of the toilet.</p>	 <p>When the user stays in place longer than 6 seconds then moves away, the controller sends a signal to the operating unit to automatically trip the Flush Valve after 3 seconds delay.</p>	 <p>If toilet is not used for 24 hrs, the system automatically flushes as a maintenance and hygienic precaution.</p>

■ Using the Urinal Flush Valve

Infrared Sensor	Flushing	Flushing Every 12 hours
 <p>The infrared sensor detects a user standing within 2 ft (600 mm) of the front of the urinal.</p>	 <p>When the user stays in place longer than 6 seconds then moves away, the controller sends a signal to the operating unit to automatically trip the flush. (No delay)</p>	 <p>If urinal is not used for 12 hrs the system automatically flushes as a maintenance and hygienic precaution.</p>

■ Common

Manual Flushing Button



Use the manual flush button for maintenance and/or emergencies.

ENGLISH

TROUBLESHOOTING

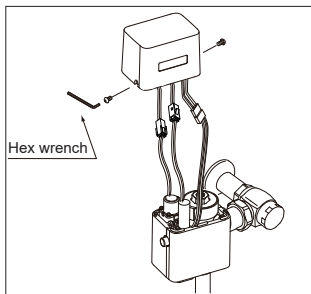
Problem	Possible Cause	Suggested Action	Ref. Page
No water comes from the Flush Valve	The main valve in water supply line or the control stop is shut off	Open the main valve or the control stop	-
	One or more cables not connected	Check all cable connections	-
	The surface of the glass in front of the infrared sensor is dirty	Clean the surface of the glass	-
	The glass is broken	Contact distributor for replacement	-
	There is a reflective surface in front of the sensor	Remove the reflective surface in front of sensor	15
	The infrared sensor or the solenoid is out of order	Contact distributor for replacement	-
	The small holes in the solenoid diaphragm are clogged	Clean the small hole in the diaphragm and filter	14
	Hydropower generator is clogged	Service hydropower generator	-
Water does not stop flowing	The small hole in the piston is clogged (not for TEU1UA(R)(X))	Clean the small hole in the piston	13
	The sealing area of the piston is dirty (not for TEU1UA(R)(X))	Clean the sealing area of the piston	13
	The sealing area of the solenoid diaphragm is dirty	Clean the sealing area of the diaphragm and filter	14
	Piston u-packing is damaged (not for TEU1UA(R)(X))	Inspect & replace if necessary	13
The discharge volume is too small	The screw of the control stop is not adjusted properly	Adjust the discharge quantity by the screw of the control stop	14
The discharge volume is too much			
The flow rate is too low	Water supply pressure is too low (below rated minimum pressure)	Consult with a plumbing contractor	-
	The control stop is not open enough	Adjust the control stop properly	14
The flow rate is too high	The control stop is not adjusted properly	Adjust the control stop properly	14
A red light in the sensor window blinks	The battery is weak	Check voltage with multimeter, if below 2.6 V, contact TOTO for replacement battery.	14

NOTE: Do not dismantle parts of the Flush Valve which are not specified in the troubleshooting guide.
If you need further assistance, please call TOTO Technical Support at (888) 295-8134.

■ DISASSEMBLY

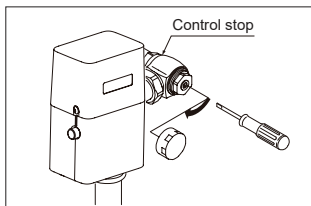
If the whole valve needs to be removed from the water supply for servicing, please be aware of the cautions below:

1. Be careful not to lose or tear the friction washer at the outlet connection to the vacuum breaker tube nut. To maintain a proper seal, replace the washer if necessary.
2. When re-installing the valve to the water supply, avoid pinching the o-ring.

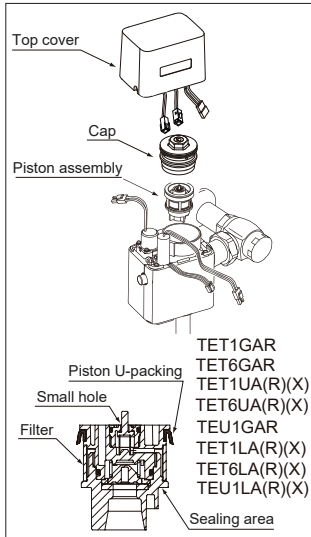


■ CLEANING PISTON ASSEMBLY AND FILTER

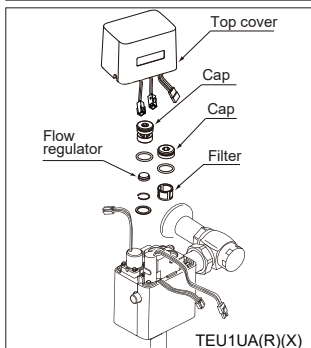
1. Turn the screw of the control stop clockwise to turn off the water.



2. Take out the piston assembly (except for TEU1UA(R)(X)) or take out the filter for TEU1UA(R)(X).



3. Check the small hole in the piston to see if it is clogged with debris. Insert a small wire to unplug hole if needed.
4. Check the filter to see if it is clogged with debris and gently brush it clean.
5. Check the sealing area of the piston and clean it if it is dirty.
6. Check the U-packing for cracks or damage.

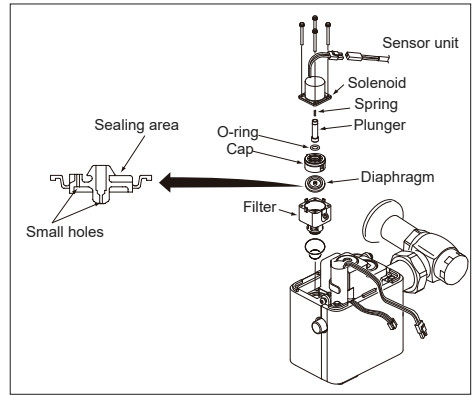


■ CLEANING DIAPHRAGM AND FILTER

1. Turn the screw on the control stop clockwise to turn off the water.
2. Disconnect the solenoid.
3. Remove the solenoid and take out the diaphragm. Then check the small holes and sealing area.

NOTE: See below for disassembly.

NOTE: Do not stretch or alter the shape of the spring in the solenoid valve in any way. It will void the warranty.



■ CHECKING THE SOLENOID

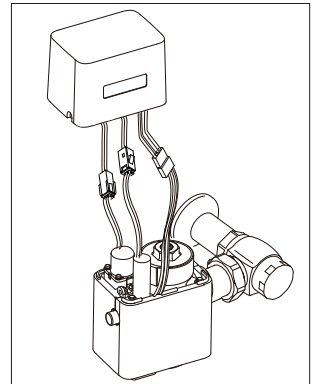
1. Make sure the batteries are properly placed and cables are connected.
2. With water supply turned off, place your hand in front of the sensor for 6 seconds.
3. Remove and listen for a "click" sound after 3 seconds. This indicates the solenoid plunger has been activated.

■ BATTERY REPLACEMENT

A special lithium back-up battery is used. Replace only with the battery provided by TOTO.

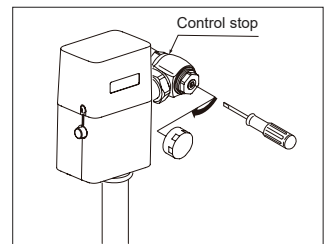
If a red light in the sensor window blinks with the cycle of 4 seconds, it is time to replace the battery.

1. Remove the old battery.
2. Set the new battery at the proper position.



■ ADJUSTMENT OF THE FLOW RATE

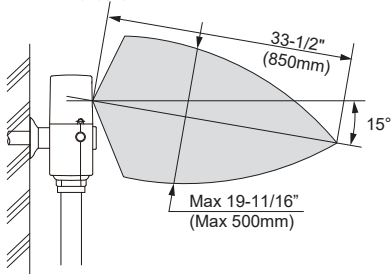
1. Adjust the flow rate by the turning screw on the control stop.
2. Turn the screw to the right to decrease the flow rate and turn to the left to increase.



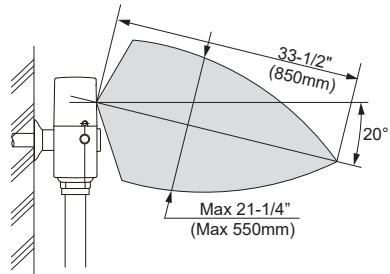
■ DETECTION RANGE

The detection range of the infrared sensor is set at the factory and does not need further adjustment.

TET1GAR, TET1LA(R)(X), TET1UA(R)(X)
TEU1GAR, TEU1UA(R)(X)
TEU1LA(R)(X)



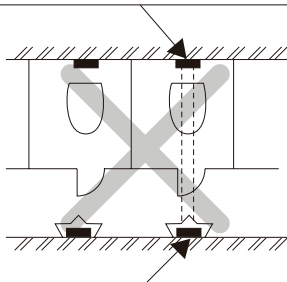
TET6LA(R)(X), TET6UA(R)(X)
TET6GAR



PRECAUTION

DO NOT place the infrared sensor of one Flush Valve so that it is in line with the sensor of another Flush Valve sensor.

Another infrared sensor.

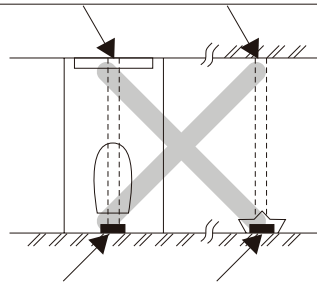


Infrared sensor of the automatic Flush Valve.

PRECAUTION

DO NOT place the infrared sensor in front of a mirror, stainless steel wall, or other highly reflective surface.

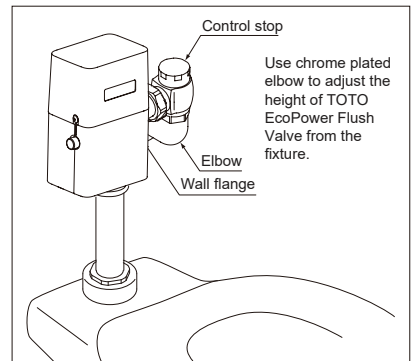
Mirror, stainless steel wall or other highly reflective surface.



Infrared sensor of the automatic Flush Valve.

NOTE: In some cases, the valve may not detect a user if the toilet seat is left in an upright position. This can be due to the rough-in dimension or gap of the open front commercial seat. Please lower the seat or arrange with a TOTO or other plumbing contractor to change the height of the valve.

The sensor can have trouble detecting users wearing black clothes in some conditions.



WARRANTY

1. TOTO warrants its electronic flush valves, faucets and soap dispensers ("Product") to be free from defects in materials and workmanship during normal use when properly installed and serviced, for a period of three (3) years from date of purchase. This limited warranty is extended only to the ORIGINAL PURCHASER of the Product and is not transferable to any third party, including but not limited to any subsequent purchaser or owner of the Product. This warranty applies only to TOTO Product purchased and installed in North, Central and South America.
2. TOTO's obligations under this warranty are limited to repair, replacement or other appropriate adjustment, at TOTO's option, of the Product or parts found to be defective in normal use, provided that such Product was properly installed, used and serviced in accordance with instructions. TOTO reserves the right to make such inspections as may be necessary in order to determine the cause of the defect. TOTO will not charge for labor or parts in connection with warranty repairs or replacements. TOTO is not responsible for the cost of removal, return and/or reinstallation of the Product.
3. This warranty does not apply to the following items:
 - a. Damage or loss sustained in a natural calamity such as fire, earthquake, flood, thunder, electrical storm, etc.
 - b. Damage or loss resulting from any accident, unreasonable use, misuse, abuse, negligence, or improper care, cleaning, or maintenance of the Product.
 - c. Damage or loss resulting from sediments or foreign matter contained in a liquid soap system.
 - d. Damage or loss resulting from improper installation or from installation of the Product in a harsh and/or hazardous environment, or improper removal, repair or modification of the Product.
 - e. Damage or loss resulting from electrical surges or lightning strikes or other acts which are not the fault of TOTO or which the Product is not specified to tolerate.
 - f. Damage or loss resulting from normal and customary wear and tear, such as gloss reduction, scratching or fading over time due to use, cleaning practices or water or atmospheric conditions, including but not limited to, the use of bleach, alkali, acid cleaners, dry (powder) cleaners or any other abrasive cleaners or the use of metal or nylon scrubbers.
4. In order for this limited warranty to be valid, proof of purchase is required. TOTO encourages warranty registration upon purchase to create a record of Product ownership at <http://www.totousa.com> is required. TOTO encourages registration upon purchase and failure to register will not diminish your limited warranty rights.
5. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE, PROVINCE TO PROVINCE OR COUNTRY TO COUNTRY.
6. To obtain warranty repair service under this warranty, you must take the Product or deliver it prepaid to a TOTO service facility together with proof of purchase (original sales receipt) and a letter stating the problem, or contact a TOTO distributor or products service contractor, or write directly to TOTO U.S.A., INC., 1155 Southern Road, Morrow, GA 30260 (888) 295 8134 or (678) 466-1300, if outside the U.S.A. If, because of the size of the Product or nature of the defect, the Product cannot be returned to TOTO, receipt by TOTO of written notice of the defect together with proof of purchase (original sales receipt) shall constitute delivery. In such case, TOTO may choose to repair the Product at the purchaser's location or pay to transport the Product to a service facility.

THIS WRITTEN WARRANTY IS THE ONLY WARRANTY MADE BY TOTO. REPAIR, REPLACEMENT OR OTHER APPROPRIATE ADJUSTMENT AS PROVIDED UNDER THIS WARRANTY SHALL BE THE EXCLUSIVE REMEDY AVAILABLE TO THE ORIGINAL PURCHASER. TOTO SHALL NOT BE RESPONSIBLE FOR LOSS OF THE PRODUCT OR FOR OTHER INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR EXPENSES INCURRED BY THE ORIGINAL PURCHASER, OR FOR LABOR OR OTHER COSTS DUE TO INSTALLATION OR REMOVAL, OR COSTS OF REPAIRS BY OTHERS, OR FOR ANY OTHER EXPENSE NOT SPECIFICALLY STATED ABOVE. IN NO EVENT WILL TOTO'S RESPONSIBILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTIES, INCLUDING THAT OF MERCHANTABILITY OR FITNESS FOR USE OR FOR A PARTICULAR PURPOSE, ARE EXPRESSLY DISCLAIMED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION AND EXCLUSION MAY NOT APPLY TO YOU.

FAUCETS

TOTO

TOTO U.S.A., Inc. 1155 Southern Road,
Morrow, Georgia 30260
Tel: 888-295-8134 Fax: 800-699-4889
www.totousa.com

0GU3076
Rev. A



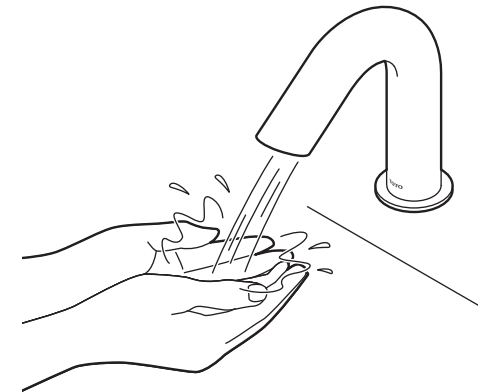
0000320

Warranty Registration and Inquiry

For product warranty registration, TOTO U.S.A. Inc. recommends online warranty registration. Please visit our web site <http://www.totousa.com>. If you have questions regarding warranty policy or coverage, please contact TOTO U.S.A. Inc., Customer Service Department, 1155 Southern Road, Morrow, GA 30260 (888) 295-8134 or (678) 466-1300 when calling from outside of U.S.A.

Installation and Owner's Manual
Manual de Instrucciones y del Propietario
Manuel d'Installation et d'Utilisation
Manual de Instalação e do Proprietário

TOTO



T20S*	T21S*
T22S*	T23S*
T24S*	T25S*
T26S*	T27S*
T28S*	T31S*

Warranty Registration and Inquiry

For product warranty registration, TOTO U.S.A. Inc. recommends online warranty registration. Please visit our web site <http://www.totousa.com>. If you have questions regarding warranty policy or coverage, please contact TOTO U.S.A. Inc., Customer Service Department, 1155 Southern Road, Morrow, GA 30260 (888) 295-8134 or (678) 466-1300 when calling from outside of U.S.A.

TABLE OF CONTENTS / ÍNDICE
TABLE DES MATIÈRES / ÍNDICE

ENGLISH

COMPONENT BREAKDOWN.....	3	INSTALLATION PROCEDURE	9
THANKS FOR CHOOSING TOTO!.....	4	HOW TO USE	13
INCLUDED PARTS	4	CARE AND CLEANING	14
FEATURES	5	PERIODIC MAINTENANCE	15
WARNINGS	6	TROUBLESHOOTING	17
BEFORE INSTALLATION	7	WARRANTY	18
TOOLS YOU WILL NEED	7	ROUGH-IN DIMENSIONS	64
SPECIFICATIONS	8		

ESPAÑOL

DESGLOSE DE LOS COMPONENTES ...	3	PROCEDIMIENTO DE INSTALACIÓN ...	24
GRACIAS POR ELEGIR TOTO!	19	CÓMO SE USA	28
INCLUÍDAS PARTES	19	CUIDADO Y LIMPIEZA	29
CARACTERÍSTICAS	20	MANTENIMIENTO PERIÓDICO	30
PRECAUCIÓN	21	RESOLUCIÓN DE PROBLEMAS	32
ANTES DE LA INSTALACIÓN	22	GARANTÍA	33
HERRAMIENTAS QUE VA A NECESITAR ...	22	BOSQUEJO	64
ESPECIFICACIONES	23		

FRANÇAIS

VENTILATION DES COMPOSANTS	3	PROCÉDURE D'INSTALLATION	39
MERCI D'AVOIR CHOISI TOTO!	34	MODE D'EMPLOI	43
PIÈCES INCLUSES	34	ENTRETIEN ET NETTOYAGE	44
CARACTÉRISTIQUES	35	MAINTENANCE PERIODIQUE	45
PRUDENCE	36	DÉPANNAGE	47
AVANT DE COMMENCER	37	GARANTIE	48
OUTILS DONT VOUS AUREZ BESOIN ..	37	ROBINETTERIE BRUTE	64
CARACTÉRISTIQUES	38		

PORTUGUÊS

DESCRIÇÃO DOS COMPONENTES	3	PROCEDIMENTO DE INSTALAÇÃO	54
OBRIGADO POR ESCOLHER TOTO! ...	49	COMO USAR	58
PEÇAS INCLUÍDAS	49	CUIDADOS E LIMPEZA	59
CARACTERÍSTICAS	50	MANUTENÇÃO PERIÓDICA	60
AVISOS	51	RESOLUÇÃO DE PROBLEMAS	62
ANTES DA INSTALAÇÃO	52	GARANTIA	63
FERRAMENTAS QUE VOCÊ PRECISA ...	52	DIMENSÕES APROXIMADAS	64
ESPECIFICAÇÕES	53		

COMPONENT BREAKDOWN / DESGLOSE DE LOS COMPONENTES
VENTILATION DES COMPOSANTS / DESCRIÇÃO DOS COMPONENTES

Spout Type	GPM	MODE	GPC	Kit model# (x refers to controller type)	Spout#	AC Controller# (x = A)	ECOPOWER Controller# (x = E)
Standard-S	0.35	D20	0.12	T27S32x#\$\$	TLE27001U2#\$\$	TLE01501U	TLE03501U2
Standard-S	0.5	D10	0.08	T27S51x#\$\$	TLE27002U1#\$\$	TLE01502U	TLE03502U1
Standard-S	0.5	C20	0.17	T27S53x#\$\$	TLE27002U3#\$\$	TLE01502U	TLE03502U3
Standard-S	1.0	D10	0.18	T27S11x#\$\$	TLE27003U1#\$\$	TLE01503U	TLE03503U1
Standard-R	0.35	D20	0.12	T28S32x#\$\$	TLE28001U2#\$\$	TLE01501U	TLE03501U2
Standard-R	0.5	D10	0.08	T28S51x#\$\$	TLE28002U1#\$\$	TLE01502U	TLE03502U1
Standard-R	0.5	C20	0.17	T28S53x#\$\$	TLE28002U3#\$\$	TLE01502U	TLE03502U3
Standard-R	1.0	D10	0.18	T28S11x#\$\$	TLE28003U1#\$\$	TLE01503U	TLE03503U1
Standard-R EWATER+	0.5	D10	0.08	T31S51S#\$\$	TLE31002U1#\$\$	TLE02502U	—
GE	0.35	D20	0.12	T20S32x#\$\$	TLE20001U2#\$\$	TLE01501U	TLE03501U2
GE	0.5	D10	0.08	T20S51x#\$\$	TLE20006U1#\$\$	TLE01502U	TLE03502U1
GE	0.5	C20	0.17	T20S53x#\$\$	TLE20006U3#\$\$	TLE01502U	TLE03502U3
GC	0.35	D20	0.12	T21S32x#\$\$	TLE21001U2#\$\$	TLE01501U	TLE03501U2
GC	0.5	D10	0.08	T21S51x#\$\$	TLE21006U1#\$\$	TLE01502U	TLE03502U1
GC	0.5	C20	0.17	T21S53x#\$\$	TLE21006U3#\$\$	TLE01502U	TLE03502U3
GM	0.35	D20	0.12	T22S32x#\$\$	TLE22001U2#\$\$	TLE01501U	TLE03501U2
GM	0.5	D10	0.08	T22S51x#\$\$	TLE22006U1#\$\$	TLE01502U	TLE03502U1
GM	0.5	C20	0.17	T22S53x#\$\$	TLE22006U3#\$\$	TLE01502U	TLE03502U3
Libella Semi-Vessel	0.35	D20	0.12	T23M32x#\$\$	TLE23002U2#\$\$	TLE01501U	TLE03501U2
Libella Semi-Vessel	0.5	D10	0.08	T23M51x#\$\$	TLE23007U1#\$\$	TLE01502U	TLE03502U1
Libella Semi-Vessel	0.5	C20	0.17	T23M53x#\$\$	TLE23007U3#\$\$	TLE01502U	TLE03502U3
Libella Wall Mount-L	0.35	D20	0.12	T23L32x#\$\$	TLE23005U2#\$\$	TLE01501U	TLE03501U2
Libella Wall Mount-L	0.5	D10	0.08	T23L51x#\$\$	TLE23010U1#\$\$	TLE01502U	TLE03502U1
Libella Wall Mount-L	0.5	C20	0.17	T23L53x#\$\$	TLE23010U3#\$\$	TLE01502U	TLE03502U3
Gooseneck	0.35	D20	0.12	T24S32x#\$\$	TLE24001U2#\$\$	TLE01501U	TLE03501U2
Gooseneck	0.5	D10	0.08	T24S51x#\$\$	TLE24006U1#\$\$	TLE01502U	TLE03502U1
Gooseneck	0.5	C20	0.17	T24S53x#\$\$	TLE24006U3#\$\$	TLE01502U	TLE03502U3
Gooseneck Vessel	0.35	D20	0.12	T24T32x#\$\$	TLE24003U2#\$\$	TLE01501U	TLE03501U2
Gooseneck Vessel	0.5	D10	0.08	T24T51x#\$\$	TLE24008U1#\$\$	TLE01502U	TLE03502U1
Gooseneck Vessel	0.5	C20	0.17	T24T53x#\$\$	TLE24008U3#\$\$	TLE01502U	TLE03502U3
Axiom	0.35	D20	0.12	T25S32x#\$\$	TLE25001U2#\$\$	TLE01501U	TLE03501U2
Axiom	0.5	D10	0.08	T25S51x#\$\$	TLE25006U1#\$\$	TLE01502U	TLE03502U1
Axiom	0.5	C20	0.17	T25S53x#\$\$	TLE25006U3#\$\$	TLE01502U	TLE03502U3
Axiom Vessel	0.35	D20	0.12	T25T32x#\$\$	TLE25003U2#\$\$	TLE01501U	TLE03501U2
Axiom Vessel	0.5	D10	0.08	T25T51x#\$\$	TLE25008U1#\$\$	TLE01502U	TLE03502U1
Axiom Vessel	0.5	C20	0.17	T25T53x#\$\$	TLE25008U3#\$\$	TLE01502U	TLE03502U3
Axiom Wall Mount-L	0.35	D20	0.12	T25L32x#\$\$	TLE25005U2#\$\$	TLE01501U	TLE03501U2
Axiom Wall Mount-L	0.5	D10	0.08	T25L51x#\$\$	TLE25010U1#\$\$	TLE01502U	TLE03502U1
Axiom Wall Mount-L	0.5	C20	0.17	T25L53x#\$\$	TLE25010U3#\$\$	TLE01502U	TLE03502U3
Helix	0.35	D20	0.12	T26S32x#\$\$	TLE26001U2#\$\$	TLE01501U	TLE03501U2
Helix	0.5	D10	0.08	T26S51x#\$\$	TLE26006U1#\$\$	TLE01502U	TLE03502U1
Helix	0.5	C20	0.17	T26S53x#\$\$	TLE26006U3#\$\$	TLE01502U	TLE03502U3
Helix Vessel	0.35	D20	0.12	T26T32x#\$\$	TLE26003U2#\$\$	TLE01501U	TLE03501U2
Helix Vessel	0.5	D10	0.08	T26T51x#\$\$	TLE26008U1#\$\$	TLE01502U	TLE03502U1
Helix Vessel	0.5	C20	0.17	T26T53x#\$\$	TLE26008U3#\$\$	TLE01502U	TLE03502U3
Helix Wall Mount-L	0.35	D20	0.12	T26L32x#\$\$	TLE26005U2#\$\$	TLE01501U	TLE03501U2
Helix Wall Mount-L	0.5	D10	0.08	T26L51x#\$\$	TLE26010U1#\$\$	TLE01502U	TLE03502U1
Helix Wall Mount-L	0.5	C20	0.17	T26L53x#\$\$	TLE26010U3#\$\$	TLE01502U	TLE03502U3

THANKS FOR CHOOSING TOTO!

The mission of TOTO is to provide the world with healthy, hygienic and more comfortable lifestyles. We design every product with the balance of form and function as a guiding principle. Congratulations on your choice.

INCLUDED PARTS

*Check to make sure you have all these parts from the package.

- Appearance of some components may vary depending on the model.
- Each model includes a Manual.

*Each spout model can be connected to TOTO's Touchless Faucet Controller with Heater. Refer to Installation and Owner's Manual of the controller. (Document #0GU3080)

*After installation, give this manual and included tools to the owner.

SPOUT (Deck-Mounted models)

STD - S

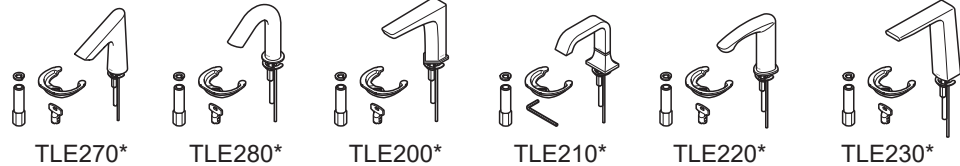
STD - R

GE

GC

GM

Libella
Semi-Vessel



Gooseneck

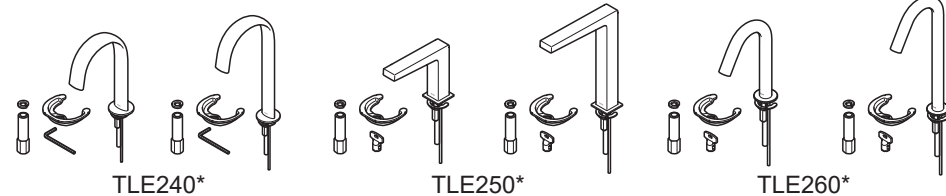
Gooseneck
Vessel

Axiom

Axiom
Vessel

Helix

Helix
Vessel

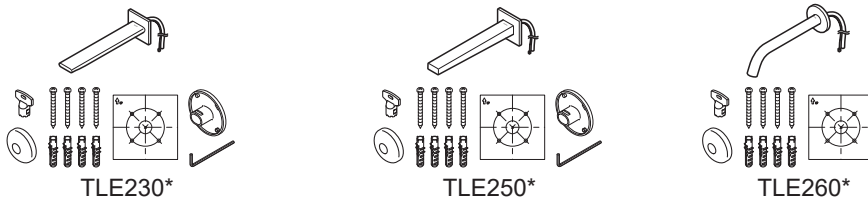


SPOUT (Wall-Mounted models)

Libella

Axiom

Helix

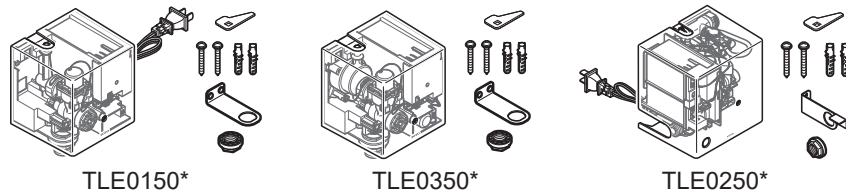


CONTROLLER

AC

ECOPOWER

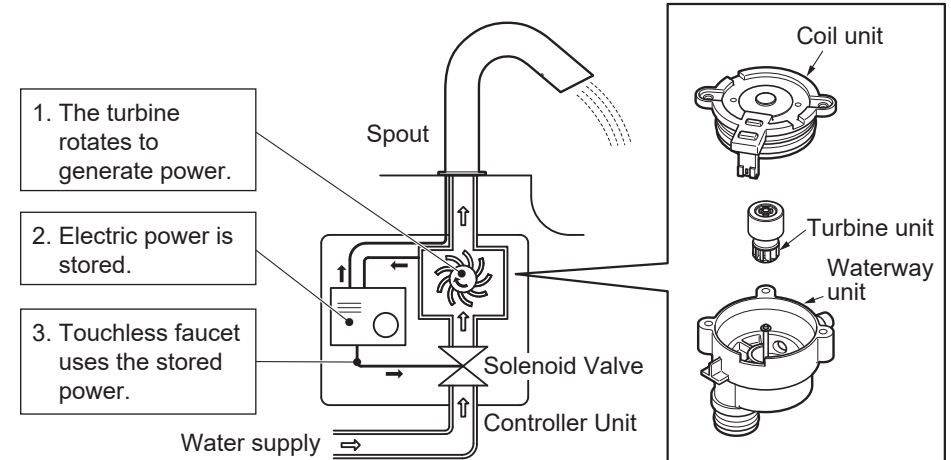
EWATER+



FEATURES

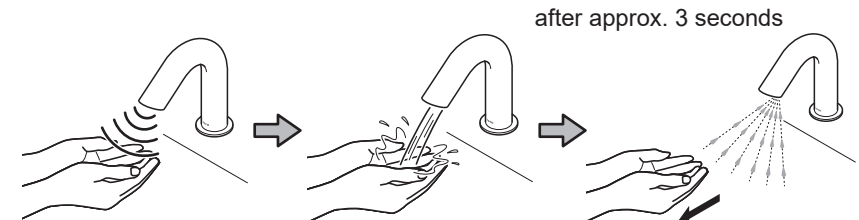
■Mechanism for ECOPOWER, Hydropowered generator

The flow of water causes the turbine in the power generator to rotate, which generates electric power, and enables the Touchless Faucet to operate.



ECOPOWER Touchless Faucet are designed to work for 10 years, under normal conditions, with no minimum usage required.

■Mechanism for EWATER+



Shortly after moving your hand away from the water outlet, the water shuts off. Approximately 3 seconds later, EWATER+ will automatically spray from the water outlet toward the drain. While EWATER+ is sprayed, a blue light comes on. If your hand comes near the water outlet while EWATER+ is being sprayed, water for hand washing will be dispensed instead. EWATER+ and hand-washing water may also be dispensed even when no one is present. The blue light will not turn on at this time.

What is EWATER+?

Ordinary household water is electrolyzed to make EWATER+, which contains hypochlorous acid. No chemicals or detergents are used in the process. EWATER+ automatically turns back into normal water after a certain amount of time. EWATER+ sprayed from Touchless Faucet is for the lavatory including the drain. It is not for drinking.

WARNINGS

Please read and adhere to the following notes. Failure to do so could result in personal injury and/or property damage.

- No person other than a service engineer should disassemble, repair or modify this product, unless it is specifically described in this manual. Failure to do so may result in electric shock or product malfunction.
- Comply with all local plumbing codes.
- Do not install in the following environments: outdoors, in humid locations such as saunas, freezing locations, or moving vehicles. If the temperature drops to freezing, wrap the pipes with insulation.
- Do not strike or kick the faucet or controller box, as this may damage the unit or cause a leak.
- Do not touch the hot surface of the stop valve of the controller, as it may be very hot.
- Be sure to install the product in the correct orientation according to this manual. Otherwise, malfunction and damage could result.
- Make sure the water supply is shut off before beginning installation.
- Always close the stop valve before cleaning the filter and wait for the filter on the hot water side to cool down.
- Do not block the flow of water at the spout opening during use.
- Select the GFCI outlet mounting location so that condensation on the water supply pipe and water splashed during use of the product does not contact the outlet, or consider using a water-proof outlet.
- Make sure the power cord does not come in contact with the hot water supply pipe.
- Do not use supplied water hotter than 185 °F (85 °C). In order to prevent scalding due to improper operation, set the cold water supply pressure to higher than the hot water supply pressure or to the same pressure.
- Do not use extension cord.
- Do not store combustibles that can burn easily such as paper or clothing next to the controller.
- Do not operate the product if it has damaged electrical connections, if it is not working properly, or if it has been damaged or dropped.
- Unplug the product if it will not be used for a long period of time.
- Do not use this product with any power supply other than specified. The voltage supply must be separately switchable.
- Do not damage, modify (cut or extend), bend forcibly, twist, pull, pinch, roll up, heat or put heavy objects on the power cord or power plug.
- Always unplug by holding the plug by the base. When inserting, push it in all the way to the base.
- Do not wet the power plug or electrical parts or insert or pull power plug with wet hands.
- Always make sure the power plug is clean of dust or dirt.
- Avoid operation during thunderstorms.
- Do not handle the cord roughly or plug it into a loose outlet.
- Electrical work should always be carried out by qualified personnel (electricians) in accordance with relevant laws, ordinances, and regulations, and lines should be grounded. There is a risk that incorrect electrical work could lead to malfunction or electrocution due to electric leakage.
- Do not use pressure washer.

WARNINGS

- Do not leave abnormalities, such as rattling parts, unaddressed.
- At least annually, check around pipes for water leakage, replace worn check valves, and turn the temperature control handle of the thermal mixing valve to prevent buildup or sticking.
- Do not clean the product with cleaning agents other than diluted neutral detergent.
- If hot water stays in the equipment or piping for an extended period of time the water quality may deteriorate. Please drain any hot water that has remained in the equipment or piping for a long time.

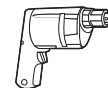
DOUBLE INSULATION INSTRUCTIONS

This faucet is double-insulated, eliminating the need for a separate grounding system. Use this product as described in the manual and observe the warnings that appear on the product.

 **DOUBLE INSULATED - GROUNDING NOT REQUIRED - WHEN SERVICING USE ONLY IDENTICAL REPLACEMENT PARTS.**

BEFORE INSTALLATION

- To ensure the product installation is completed correctly, please carefully read this manual entirely before beginning installation.
- Observe all local and plumbing codes.
- Make sure that all pipework, stop valves, and connection lines are installed according to local codes.
- Check the cold and/or hot water supply pressure.
- The recommended working pressure range is 20 psi - 80 psi (138 kPa - 551 kPa).
- If the supply pressure is higher than 80 psi (551 kPa), reduce to within recommended range by using a pressure reducing valve (sold separately).
- Water pressures over 80 psi (551 kPa) are not recommended for most plumbing fixtures. Check your local plumbing code for details.
- Make sure to set the cold water supply pressure to higher than the hot water supply pressure, or to the same pressure.
- Check the temperature of the water supply.
- The recommended supply temperature range is 39 °F-104 °F (4 °C-40 °C)
- Never use steam as a hot water supply.
- Flush all water lines prior to installation.
- Make sure to not damage the sensor surface during installation.
- Do not place other devices that use an inverter or infrared sensor near the faucet, as this may cause the faucet to malfunction.
- Confirm that the lavatory size and shape are compatible with the faucet dimensions.
- Shut off the water supply at the stop valve(s).

TOOLS YOU WILL NEED

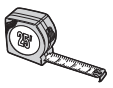
Drill

Phillips
Screwdriver

Pencil



Level

Tape
Measure

SPECIFICATIONS

Model	ECOPOWER	AC	EWATER+		
Power supply	Hydropower Generation (self-powering power supply)	110 - 120 V AC	100 - 240 V AC		
Wattage	-	1 W	43 W		
Power Cord Length	-	29-1/2" (750 mm)			
Sensor Detection Range	5-1/8"-7-7/8" (130-200 mm) / Sensor is self-adjusting.				
Water Supply Pressure	Minimum: 15 psi (100 kPa) (Flowing) / Maximum: 80 psi (551 kPa)				
Water Condition	Tap water from municipal source or Potable well water				
Water Supply Connection	G1/2 compatible with 1/2 NPSM				
Inlet Temperature Range	39-110 °F (4-43.3 °C)				
Ambient Temperature	32-104 °F (0-40 °C)				
Humidity	Max. 90% RH				
Model	ECOPOWER • AC				EWATER+
Flow Rate	gpm (L/min)	0.35 (1.3)	0.5 (1.9)	1.0 (3.8)	0.5 (1.9)
Duration	seconds	20	10	20	10
		*On-demand	On-demand	**Continuous	On-demand
Volume per cycle	gpc (L/cycle)	0.12 (0.44)	0.08 (0.32)	0.17 (0.63)	0.18 (0.68)

*On-demand refers to the way in which the water is dispensed (i.e.; water is only dispensed when the sensor is activated by the user as needed).

**Continuous means that water is dispensed for a continuous 20 second cycle.

Following the federal mandate for water efficiency outlined in the Environmental Protection Act of 1992, faucets can be rated for water usage based on two categories: Water Consumption (Gallons per Cycle) or Flow Rate (Gallons per Minute). TOTO uses water consumption because it is the most accurate method of measuring water use. This method of measurement can be incorporated into water usage calculations for various efficiency programs.

Cycle

The cycle is the maximum number of seconds the faucet allows water to flow once activated.

Gallons per Cycle (GPC)

Gallons per Cycle (GPC) is the AMOUNT of water consumed in one cycle. GPC is determined by operating the faucet for a complete cycle and measuring the amount of water delivered. For example, a faucet delivering 0.12 gallons during a 20 second cycle operates at 0.12 GPC.

Gallons per Minute (GPM)

Gallons per Minute (GPM) is the RATE of water flow and the number of gallons of water the faucet would deliver if allowed to run continuously for one minute. GPM is determined by dividing the number of gallons of water delivered by the number of seconds of flow and multiplying by 60. For example, a faucet delivering 0.25 gallons in 30 seconds operates at 0.5 GPM.

GPC vs GPM

If the flow rate of the faucet and the duration of flow are known, GPC can be calculated. For example, a faucet, flowing at 0.5 GPM for 10 seconds delivers 0.08 GPC.

Mode & Cycle	GPM	GPC
On-demand 10 sec	0.5	0.08
On-demand 10 sec	1.0	0.18
On-demand 20 sec	0.35	0.12
Continuous 20 sec	0.5	0.17

INSTALLATION PROCEDURE

Install the Controller

Please note that it will take at least 5 minutes after connecting the backup battery for the electronics to initialize. This delay is a normal part of start up.

NOTE:

Before installing the product, be sure to thoroughly flush the supply pipes of dirt and debris. Shut off the water supply at the stop valve(s) after flushing.

NOTE:

See the rough-in dimension page to determine the proper location for the controller.

IMPORTANT!

Be sure to install the product in the correct orientation as shown to prevent malfunction and damage.

- Loosen the screw on the front of the controller cover to remove screw and cover.
- Only ECOPOWER models. (TLE0350*)
Connect backup battery to controller.

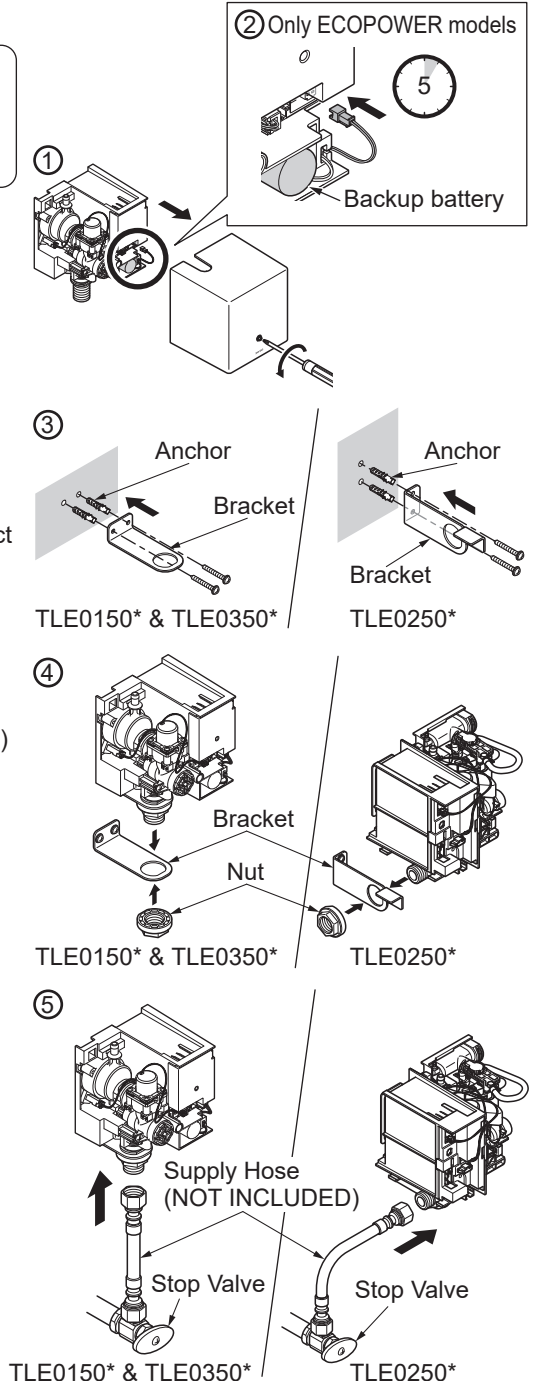
NOTE:

Product will require 5 min. to initialize.

- Mount the bracket on the wall.
If necessary, use wall anchors.
- Guide the controller inlet through the bracket hole. Fasten the large nut by hand to secure the controller.
- Connect the water supply line to the controller inlet.

NOTE:

If using a thermostatic valve (sold separately), please refer to its installation manual for details.



INSTALLATION PROCEDURE

Install the Spout

To Install Deck-Mounted models

Secure the spout to the countertop with the included mounting hardware.

Make sure that the spout is mounted with the tip directed towards the center of the lavatory.

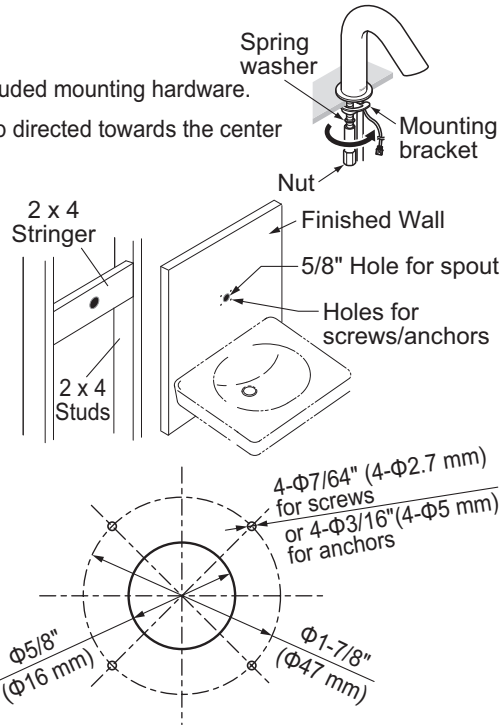
To Install Wall-Mounted models

NOTE:

Reinforce the wall area behind the spout installation location. The addition of 2 x 4 stringer is highly recommended.

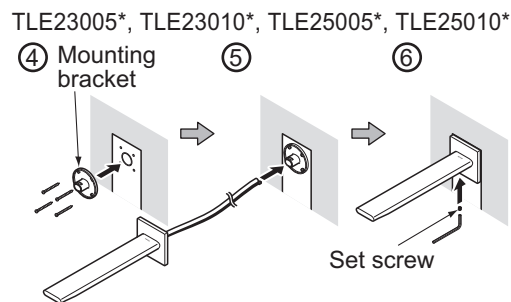
1. Place mounting template on wall at desired location and mark holes.
2. Drill a 5/8" (16 mm) diameter hole at the spout mounting location (center).
3. Drill four pilot holes at marked locations. For fastening to wood, drill holes $\Phi 7/64$ " (2.7 mm).

For fastening to drywall or tile, drill holes $\Phi 3/16$ " (5 mm) and insert anchors until flush. Tap lightly with a hammer if needed.



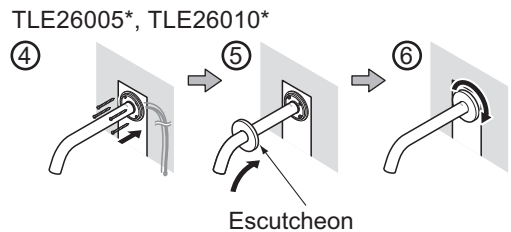
To Install Libella and Axiom Wall-Mounted models

4. Place mounting bracket against wall and fasten securely with the provided screws.
5. Pass the hose and sensor cord through the mounting bracket respectively.
6. Tighten the set screw with the provided 2.5 mm hex wrench from the bottom to secure the spout to the mounting bracket.



To Install Helix Wall-Mounted models

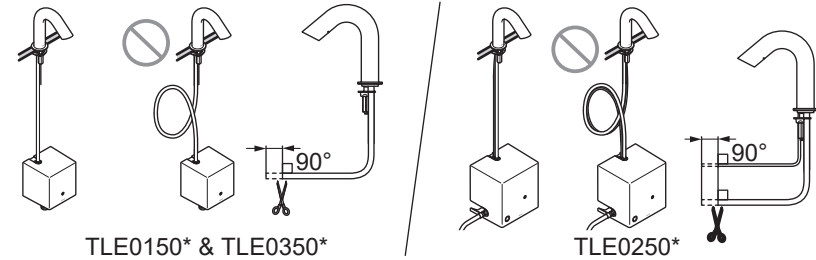
4. Feed the hose tube and sensor cord through the 5/8" (16 mm) hole in center. Place spout against wall and fasten securely with the provided screws.
5. Pass the escutcheon through the spout.
6. Fasten the escutcheon to the bracket until hand-tight.



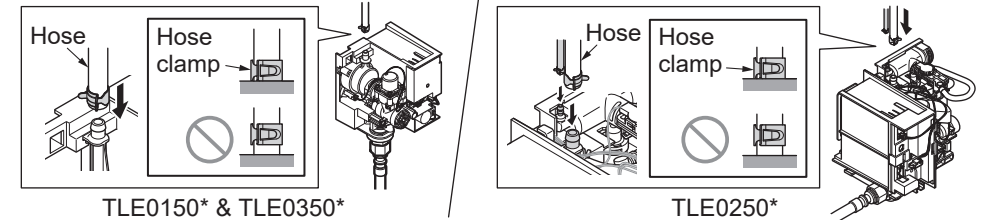
INSTALLATION PROCEDURE

Connect the Spout to the Controller

1. Cut the hose if necessary. Make sure the cuts are square.



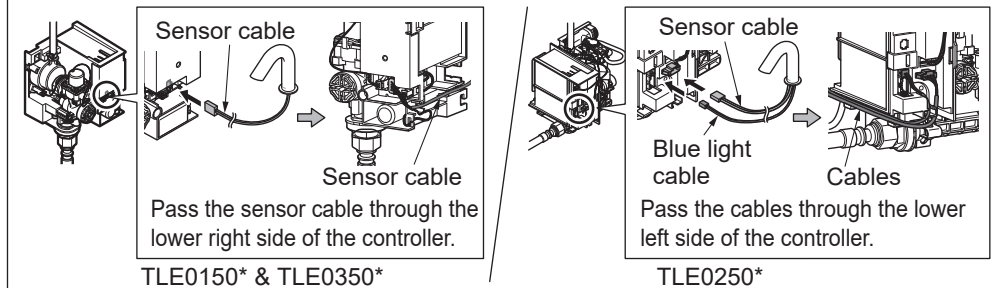
2. Push the hose completely onto the outlet barb of the controller and secure it with the hose clamp. Make sure that the hose and hose clamp are placed fully against the controller.



3. Insert the sensor connector as shown. Listen for the "click" indicating a secure connection.

Only EWATER+ models (TLE0250*)

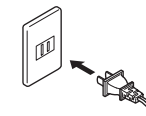
Insert the blue light connector as shown. Listen for the "click" indicating a secure connection.



Only ECOPOWER models (TLE0350*)

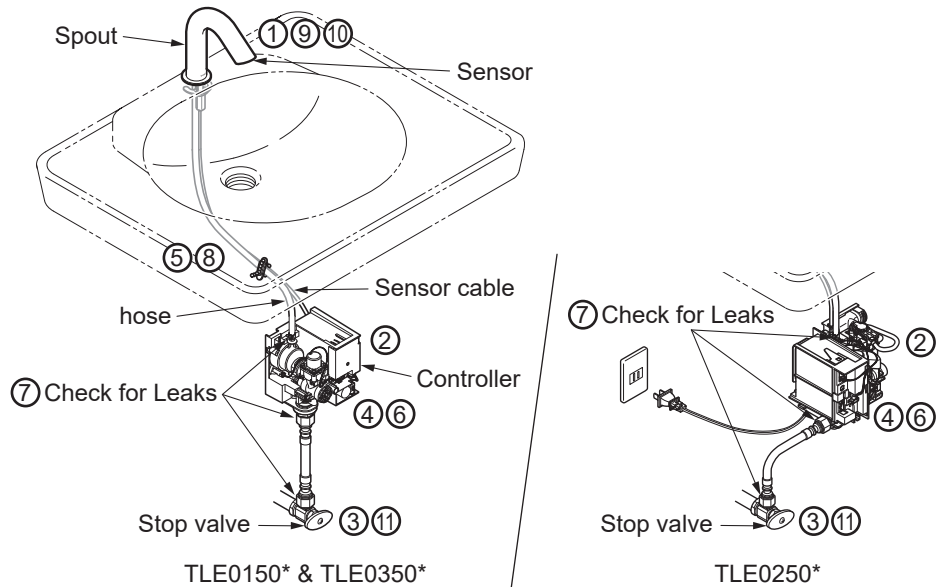
If you haven't connected the backup battery, connect the backup battery connector to the controller. Product will require 5 min. to initialize. See "Install the controller" section.

4. AC and EWATER+ models (TLE0150* & TLE0250*)
Insert the power plug.



INSTALLATION PROCEDURE

Trial Run and Calibration



1. Place your hand 4-6 inches (100-150 mm) away from the tip of the spout to activate the faucet.
2. The solenoid should "click". If this does not happen check the "TROUBLESHOOTING" section.
3. Turn on the water supply at the stop valve(s).
4. Carefully trace the water supply from the stop valve(s) to connector of the controller.
5. Inspect all connections for any leaks. Ensure that the supply hose(s) are not kinked or twisted.
6. Activate the faucet again.
7. Check all connections for leaks. Pay special attention to the area where the hose connects to the top of the controller.
8. Ensure that the hose is not kinked or twisted.
9. Observe the path of the flowing water. Make sure the water flows smoothly. Check for leaking, dripping, or spraying from the nozzle outlet.
10. If the water splashes from the lavatory or the flow is too forceful, please refer to "TROUBLESHOOTING" section.
11. If flow rate adjustment is necessary because the lavatory is too small, turn the stop valve(s) clockwise to limit the flow.

IMPORTANT!

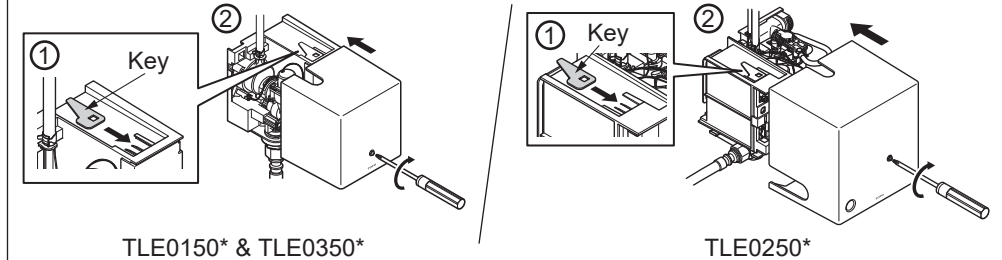
The faucet will begin an automatic sensing range adjustment immediately after the sensor connector is plugged into the controller. Do not place your hands or other objects in front of the sensor. This process may take up to 20 seconds to complete.

If the sensor light continues to flash for more than 20 seconds, the spout direction will need to be readjusted for proper operation. If adjustment is necessary, you must do it within 10 minutes or the adjustment process will end. To restart the process, unplug the sensor connector for 10 seconds, then reconnect it.

INSTALLATION PROCEDURE

Reinstall the controller cover

1. Place the key into its slot in the controller.
2. Double-check all connections. Reinstall the controller cover, and secure it with the screw.

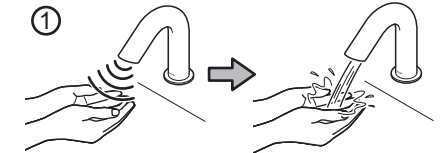


WARNING:

Draw the sensor cord from the bottom of the controller while installing the controller cover to ensure that the cord is not pinched. Double-check all connections, then reinstall the controller cover, securing it with the screw.

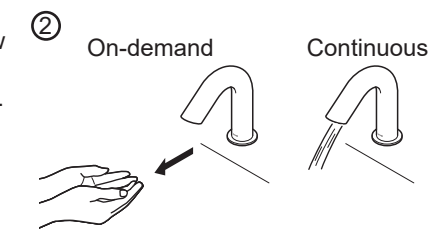
HOW TO USE

1. Water comes out when you hold out your hand.



2. For On-demand mode

Water will run for the time period indicated by the model, or water will stop when you withdraw your hand. To reactivate, withdraw your hand temporarily. Hold your hand out again to restart.

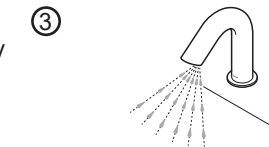


For Continuous mode

Water will run for the time period indicated by the model. Water will not stop when you withdraw your hand. To reactivate, withdraw your hand temporarily. Hold your hand out again to restart.

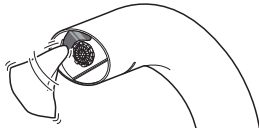
3. For EWATER+ models

3 seconds after use, EWATER+ is automatically sprayed onto the lavatory surface.



*See "FEATURES" and "SPECIFICATIONS" section for more details.

CARE & CLEANING



Clean the parts regularly to prevent the accumulation of dirt and lime-scale.

- Do not use any of the following items that could damage the spout or sensor surface:
 - Acidic cleaning agents, including citrus, chlorine bleach, alkaline cleaning agents
 - Solvents such as paint thinner and benzene
 - Cleansers, cleaning agents with coarse grains such as polishing powder
 - Nylon scouring pads, scouring pads, brushes, etc.
 - To safely clean the surface, wipe it using a dampened soft cloth with diluted dishwashing detergent and dry it with another soft cloth. If this does not adequately clean the surface, wipe the area with a neutral detergent and wet cloth.
 - When using spray cleaners, spray first onto a soft cloth or sponge. Never spray directly onto the fittings, as drops could enter openings and gaps, which can then cause damage.
 - Do not use pressure washer.
 - Components with damaged surfaces must be replaced, otherwise this can cause an injury.
 - To clean the sensor, please wipe away the dirt with a cloth moistened with cold water or lukewarm water. When extremely dirty, please wipe away the dirt with a cloth moistened with an appropriately diluted neutral cleaning agent, then wipe with a damp cloth. When cleaning, please be careful not to damage the surface of the sensor.
- * The sensor may stop working if water scale adheres to its surface. Please clean the sensor on a regular basis approximately every six months.

PERIODIC MAINTENANCE

Check your faucet at least once a month for the following potential problems and to do the following maintenance procedures:

Inspect for Leakage

Check all water connections for signs of leakage. Address any problem. Contact a qualified professional if necessary.

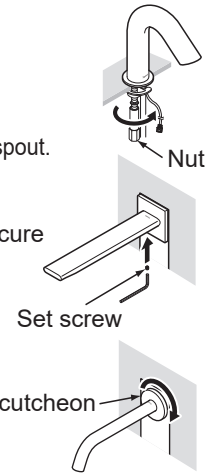
Spout Inspection

For Deck-Mounted models

Tighten the hex nut underneath the spout.

For Libella and Axiom Wall-Mounted models

1. Press the spout to the wall and tighten the set screw at the bottom of the spout.
2. If the spout is still loose, remove the set screw and the spout.
3. Tighten the four screws that secure the mounting bracket.
4. Reinstall the spout and tighten the set screw from the bottom to secure the spout to the mounting bracket.



For Helix Wall-Mounted models

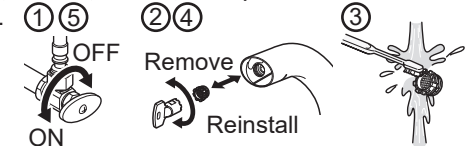
1. Unscrew and remove the escutcheon.
2. Tighten the four screws to properly secure the flange to the wall.
3. Reinstall the escutcheon.

*See "Install the Spout" section for more details.

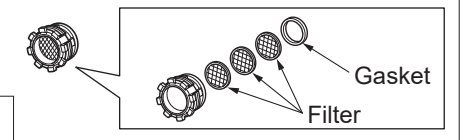
Cleaning the nozzle

For the round nozzle (STD-S, STD-R, GE, GM, Libella, Axiom, Helix)

1. Shut off the water supply at the stop valve(s).
2. Remove the nozzle from the spout with the service key. Please replace the nozzle if it is damaged.
3. Rinse the nozzle while cleaning with a soft brush.



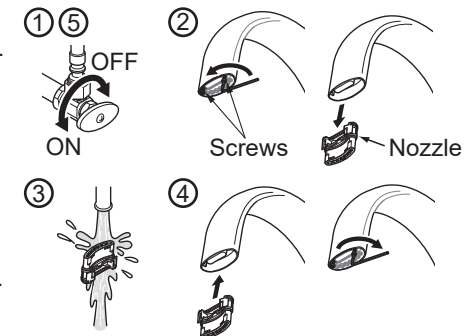
Only 1 gpm (3.8 L/min) Models (STD S, R)
Disassemble the nozzle and clean three filters with a brush.



4. Reinstall the nozzle in the spout.
5. Turn on the water supply at the stop valve(s).

For the flat nozzle (GC, Gooseneck)

1. Shut off the water supply at the stop valve(s).
2. Remove the two screws with the provided 1.5 mm hex wrench and remove the nozzle from the spout.
3. Clean the nozzle with water.

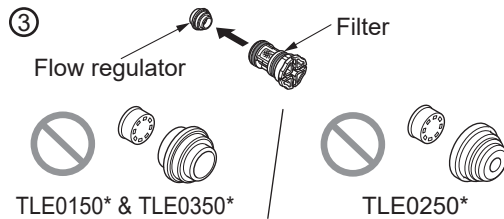
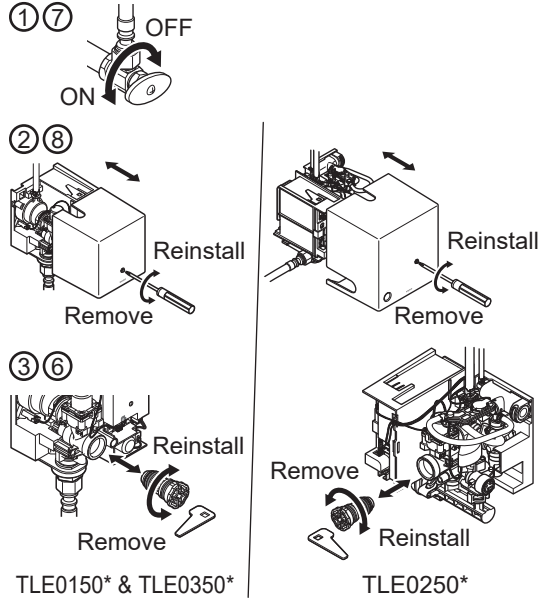


- NOTE:** Please do not use brush. Only water.
4. Reinstall the nozzle in the spout and secure the nozzle with the two screws.
 5. Turn on the water supply at the stop valve(s).

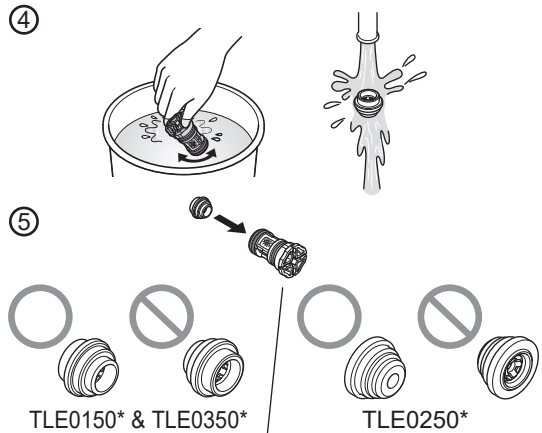
PERIODIC MAINTENANCE

Cleaning the filter and the flow regulator

1. Shut off the water supply at the stop valve(s).
2. Remove the controller cover.
3. Remove the filter and the flow regulator using the provided key. A small amount of water will come out. Please collect the water in a pan or towel.
4. Clean the filter and the flow regulator with water. Debris accumulates inside the filter and flow regulator. Please inspect carefully.
5. Attach the flow regulator to the filter.
6. Install the filter and flow regulator back into the controller.
7. Turn on the water supply at the stop valve(s). Check for any leaks. Make sure water flows smoothly.
8. Place the key into its slot in the controller. Reinstall the controller cover, and secure it with the screw.



* Do not disassemble the flow regulator.



* Pay attention to the direction of the flow regulator.

TROUBLESHOOTING

Problem	Cause	Solution
Water won't begin running	The surface of the sensor is dirty.	Clean the surface of the sensor.
	There is an obstruction in front of the sensor.	Remove the obstruction.
	The stop valve is turned off.	Turn on the valve.
	Backup battery connector is disconnected.	Connect the backup battery connector.
	The power generator and sensor connector is disconnected.	Securely attach the connector(s).
	The AC power supply is interrupted.	Check and reset the GFCI outlet. Check whether the breaker has been turned "OFF".
	Water supply is suspended.	Wait until the water supply is restored.
Water won't stop running	The nozzle, the filter or the flow regulator is clogged.	Clean the nozzle, the filter and the flow regulator.
	The surface of the sensor is dirty.	Clean the surface of the sensor.
	There is an obstruction in front of the sensor.	Remove the obstruction.
If the water continues to run after attempting the above solutions, turn off the stop valve.		
Low flow rate	The stop valve is not fully opened.	Open the stop valve fully.
	The nozzle, the filter or the flow regulator is clogged.	Clean the nozzle, the filter and the flow regulator.
Short detection range	The self-adjusting sensor may not work properly when dirty or blocked by water droplets.	Clean the sensor surface.
EWATER+ Water comes out unexpectedly	Water and EWATER+ automatically come out even when the faucet is not in use.	This is a normal product function and not a failure.
EWATER+ Blue light is blinking	It's time to replace the unit that produces EWATER+.	Contact TOTO U.S.A. Inc., Customer Service Department and consider replacing the unit that produces EWATER+.
Blue light does not illuminate when spraying EWATER+.	Malfunction of the unit that produces EWATER+.	
Low flow of EWATER+	The filter is clogged.	Clean the filter. If the problem persists, contact TOTO U.S.A. Inc., Customer Service Department and consider replacing the unit that produces EWATER+.

WARRANTY

Warranty applies to select Electronic Flush Valves, Faucets and Soap Dispensers only.

- TOTO warrants its electronic flush valves, faucets and soap dispensers ("Product") to be free from defects in materials and workmanship during normal use when properly installed and serviced, for a period of three (3) years from date of purchase. This limited warranty is extended only to the ORIGINAL PURCHASER of the Product and is not transferable to any third party, including but not limited to any subsequent purchaser or owner of the Product. This warranty applies only to TOTO Product purchased and installed in North, Central and South America.
- TOTO's obligations under this warranty are limited to repair, replacement or other appropriate adjustment, at TOTO's option, of the Product or parts found to be defective in normal use, provided that such Product was properly installed, used and serviced in accordance with instructions. TOTO reserves the right to make such inspections as may be necessary in order to determine the cause of the defect. TOTO will not charge for labor or parts in connection with warranty repairs or replacements. TOTO is not responsible for the cost of removal, return and/or reinstallation of the Product.
- This warranty does not apply to the following items:
 - Damage or loss sustained in a natural calamity such as fire, earthquake, flood, thunder, electrical storm, etc.
 - Damage or loss resulting from any accident, unreasonable use, misuse, abuse, negligence, or improper care, cleaning, or maintenance of the Product.
 - Damage or loss resulting from sediments or foreign matter contained in a water system.
 - Damage or loss resulting from improper installation or from installation of the Product in a harsh and/or hazardous environment, or improper removal, repair or modification of the Product.
 - Damage or loss resulting from electrical surges or lightning strikes or other acts which are not the fault of TOTO or which the Product is not specified to tolerate.
 - Damage or loss resulting from normal and customary wear and tear, such as gloss reduction, scratching or fading over time due to use, cleaning practices or water or atmospheric conditions, including but not limited to, the use of bleach, alkali, acid cleaners, dry (powder) cleaners or any other abrasive cleaners or the use of metal or nylon scrubbers.
- In order for this limited warranty to be valid, proof of purchase is required. TOTO encourages warranty registration upon purchase to create a record of Product ownership at <http://www.totousa.com>. Product registration is completely voluntary and failure to register will not diminish your limited warranty rights.
- THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE, PROVINCE TO PROVINCE OR COUNTRY TO COUNTRY.
- To obtain warranty repair service under this warranty, you must take the Product or deliver it prepaid to a TOTO service facility together with proof of purchase (original sales receipt) and a letter stating the problem, or contact a TOTO distributor or products service contractor, or write directly to TOTO U.S.A., INC., 1155 Southern Road, Morrow, GA 30260 (888) 295 8134 or (678) 466-1300, if outside the U.S.A. If, because of the size of the Product or nature of the defect, the Product cannot be returned to TOTO, receipt by TOTO of written notice of the defect together with proof of purchase (original sales receipt) shall constitute delivery. In such case, TOTO may choose to repair the Product at the purchaser's location or pay to transport the Product to a service facility.

THIS WRITTEN WARRANTY IS THE ONLY WARRANTY MADE BY TOTO. REPAIR, REPLACEMENT OR OTHER APPROPRIATE ADJUSTMENT AS PROVIDED UNDER THIS WARRANTY SHALL BE THE EXCLUSIVE REMEDY AVAILABLE TO THE ORIGINAL PURCHASER. TOTO SHALL NOT BE RESPONSIBLE FOR LOSS OF THE PRODUCT OR FOR OTHER INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR EXPENSES INCURRED BY THE ORIGINAL PURCHASER, OR FOR LABOR OR OTHER COSTS DUE TO INSTALLATION OR REMOVAL, OR COSTS OF REPAIRS BY OTHERS, OR FOR ANY OTHER EXPENSE NOT SPECIFICALLY STATED ABOVE. IN NO EVENT WILL TOTO'S RESPONSIBILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTIES, INCLUDING THAT OF MERCHANTABILITY OR FITNESS FOR USE OR FOR A PARTICULAR PURPOSE, ARE EXPRESSLY DISCLAIMED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION AND EXCLUSION MAY NOT APPLY TO YOU.

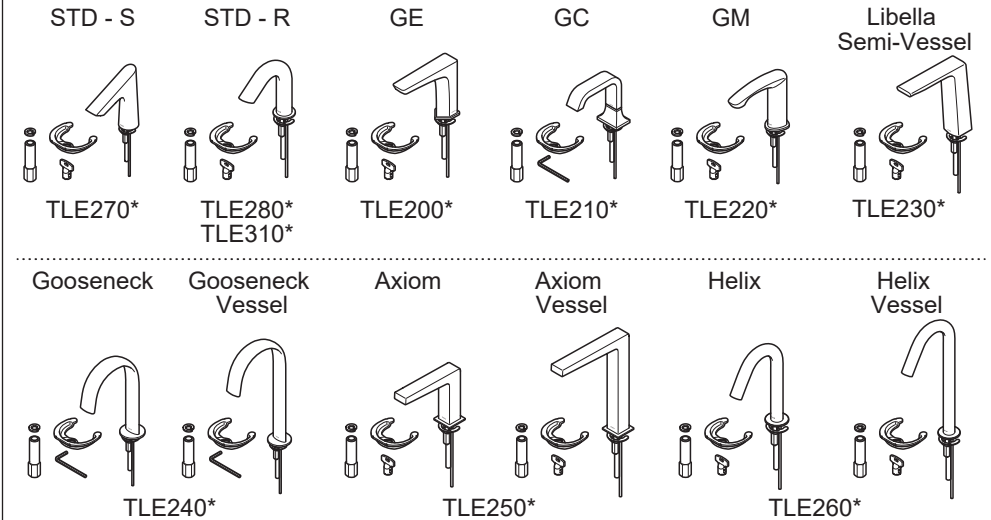
GRACIAS POR ELEGIR TOTO!

La misión de TOTO es ofrecer al mundo estilos de vida saludables, higiénicos y más cómodos. Diseñamos cada producto con un equilibrio entre forma y función como un principio orientador. Felicidades por su elección.

INCLUIDAS PARTES

- *Asegúrese que todas estas partes estén incluidas en su empaqueo.
 - La apariencia de algunos componentes puede variar dependiendo del modelo.
 - Cada modelo incluye un manual.
- *Cada modelo de caño puede ser conectado a la Controlador de Grifo sin Contacto con Calentador de TOTO. Refiérase a la Manual de Instalación y del Propietario del controlador. (Documento #0GU3080)
- *Después de la instalación, entregue este manual y las herramientas incluidas al propietario.

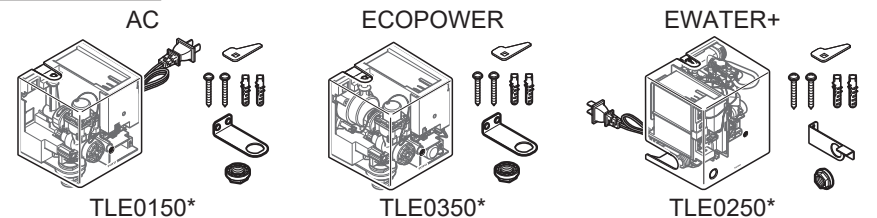
SURTIDOR (Modelos Montados en el Mostrador)



SURTIDOR (Modelos Montados en la Pared)



CONTROLADOR



REVIEW OF PLUMBING SUBMITTALS

Project: LR Statehouse Conv. Center - Atrium
Location: Little Rock, AR
Date of Receipt: Tuesday, June 27, 2023
Date of Review: Wednesday, July 12, 2023
Reviewed by: Terry Jacks
Email: tjacks@pettitinc.com

P&P Job No. 23-023

Signed: 

Checking is for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

Item	Approval Status		Comments
Section 22 40 00 – Plumbing Fixtures and Trim (WC-1, WC-2)	Approved as Noted	○	<ul style="list-style-type: none"> - Verify fixture color with architect / owner prior to ordering. - Coordinate installation mounting heights of fixtures with architect’s drawings prior to installation.
			Note: Lavatory L-1 was marked Revise and Resubmit in a previous submittal package but was not included in this resubmittal.



Note:



Submittal Transmittal

WER Architects | United States

PROJECT: LRCVB Conv Center East Lobby Renov LRCVBU22.03 DATE SENT: 7/13/2023

SUBJECT: Plumbing R1 SUBMITTAL ID: 001-01

TYPE: Submittal TRANSMITTAL ID: 00023

PURPOSE: Revise and Resubmit VIA: Info Exchange

SPEC SECTION: 22 0000

FROM

NAME	COMPANY	EMAIL	PHONE
Lauren Phipps	WER Architects	lhipps@werarch.com	

TO

NAME	COMPANY	EMAIL	PHONE
Amanda Burnsed	Wagner General	amanda@wagnergeneral.com	
Josh Brandon	Wagner General	josh@wagnergeneral.com	

REMARKS: **REVISE AND RESUBMIT**

- L-1 to be: American Standard Studio Undercounter Sink, 0614.30
- Faucet to be: Toto Helix Ecopower Facuet, TEL115

S Kupers | WER 07.13.2023

CONTENTS

QUANTITY: 1 DATED: 6/27/2023 NUMBER:

DESCRIPTION:
Submitted by Wagner - 22 40 00-01 Plumbing Fixtures Re-Submittal #1.pdf.pdf

ACTION:
REMARKS:

COPIES:

Sydney Kupers (WER Architects)
Lauren Dickey (WER Architects)

MATERIAL FURNISHED BY



Your Supply House By Choice

223 THIRD STREET, HOT SPRINGS, AR

(501) 321-1231 FAX (501) 321-4015

JOB NAME

LITTLE ROCK CONVENTION CENTER

EAST ATRIUM

LITTLE ROCK, AR

PLUMBING CONTRACTOR

COMFORT SYSTEMS USA

NORTH LITTLE ROCK, AR

APPROVAL DATE: _____

ARCHITECT: _____

MECH. ENGINEER: _____

GENERAL CONTR: _____

Please return one approved copy to Falk Plumbing Supply as soon as possible so orders can be made to meet job schedule. Thank You.

WC-1,2

Afwall® FloWise® ADA retrofit Elongated Flushometer Toilet with EVERCLEAN®

- Afwall FloWise ADA bowl replaces standard wall-hung 3.5 GPF or 1.6 GPF models and roughs-in at 410mm (16-1/8") rim height **to meet ADA with no need to modify the existing carrier or through wall supply** (providing centerline of current outlet is 133mm [5-1/4"] above finished floor).
- Wall-mounted elongated flushometer valve toilet
- Vitreous china
- High Efficiency, Low Consumption. Operates in the range of 1.28 gpf to 1.6 gpf (4.9 Lpf to 6.0 Lpf).
- Meets definition of HET (High Efficiency Toilet) when used with a 1.28 gpf high efficiency flush valve.
- Permanent EverClean® surface inhibits the growth of stain- and odor-causing bacteria, mold, and mildew on the surface
- Condensation channel
- Powerful direct-fed siphon jet action
- Fully-glazed 2-1/8" trapway
- 1-1/2" inlet spud
- 10" x 12" water surface area

- 2294.011EC** Elongated bowl only, top spud
- 2296.019EC** Elongated bowl only, top spud with slotted rim for bedpan holding

System MaP* Score:

- 1,000 grams of miso @ 1.6 gpf or 1.28 gpf when used with an American Standard flush valve

* Maximum Performance (MaP) testing performed by IAPMO R&T Lab. MaP Report conducted by MaP Testing, Inc.

Component Parts:

- 047007-0070A** Inlet spud (furnished with bowl)
- 736046-100** Flushometer valve rough-in adapter kit (furnished with bowl)

Nominal Dimensions:

635 x 375 x 410mm
(25" x 14-3/4" x 16-1/8")

For Top spud bowls, American Standard kit #736046-100 Flushometer Valve Conversion Kit containing a 25mm (1") chrome-plated street ell, a vacuum breaker, and a 330mm (13") tail piece included to meet minimum 152mm (6") code between bowl and vacuum breaker.

Recommended working pressure—between 25 psi at valve when flushing and 80 psi static

Fixture only, less seat, carrier, bolt caps, and flush valve

Compliance Certifications - Meets or Exceeds the Following Specifications:

- ASME A112.19.2-2008/CSA B45.1-08 for Vitreous China Fixtures



SEE REVERSE FOR ROUGHING-IN DIMENSIONS

To Be Specified:

- Color: White
- Seat:
 - American Standard #5901.100 Heavy duty open front less cover
 - American Standard #5905.100 Extra heavy duty open front less cover
 - American Standard #5905.110 Extra heavy duty open front less cover with EverClean® Surface
 - Other
- Flushometer Valve:
 - 1.6 gpf:
 - Sensor-Operated: American Standard Selectronic® DC Power #6065.161.002 (Top Spud)
 - Manual: American Standard #6047.161.002 (Top Spud)
 - 1.28 gpf:
 - Sensor-Operated: American Standard Selectronic® DC Power #6065.121.002 (Top Spud)
 - Manual: American Standard #6047.121.002 (Top Spud)
- Carrier Fitting J.R. Smith 210L or equal



MEETS THE AMERICANS WITH DISABILITIES ACT GUIDELINES AND ANSI A117.1 REQUIREMENTS FOR ACCESSIBLE AND USABLE BUILDING FACILITIES - CHECK LOCAL CODES.

- When installed so top of seat is 432 to 483mm (17" to 19") from the finished floor.



When used with 1.28 gpf toilet flush valves



ADA COMPLIANT

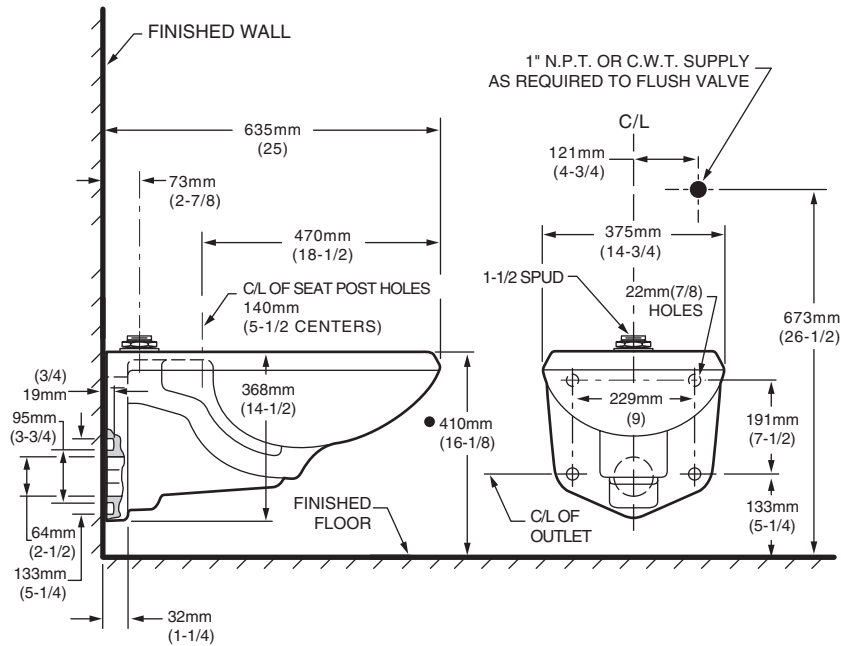


EVERCLEAN



WATER EFFICIENT

2294.011EC / 2296.019EC



NOTES:

● Toilet designed to meet ADA accessibility standards when top of seat height set at 432 to 483mm (17" to 19") from finished floor.

PRODUCT 2294.011EC SHOWN, 2296.019EC SAME AS EXCEPT WITH SLOTTED RIM FOR BED PAN HOLDING.

* REQUIRES AMERICAN STANDARD KIT 736046-100 TO UPGRADE EXISTING INSTALLATION OF FLUSH VALVE AND COMPONENTS.

WASTE OUTLET SEAL RING MUST BE NEOPRENE OR GRAPHITE-FELT (WAX RING NOT RECOMMENDED).

SUGGESTED 1/16" CLEARANCE BETWEEN FACE OF WALL AND BACK OF BOWL. TO COMPLY WITH AREA CODE GOVERNING THE HEIGHT OF VACUUM BREAKER ON THE FLUSHOMETER VALVE, THE PLUMBER MUST VERIFY DIMENSIONS SHOWN FOR SUPPLY ROUGHING.

FLUSHOMETER VALVE NOT INCLUDED WITH FIXTURE AND MUST BE ORDERED SEPARATELY.

CARRIER FITTING AS REQUIRED TO BE FURNISHED BY OTHERS.

PROVIDE SUITABLE REINFORCEMENT FOR ALL WALL SUPPORTS.

IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.2.

These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages