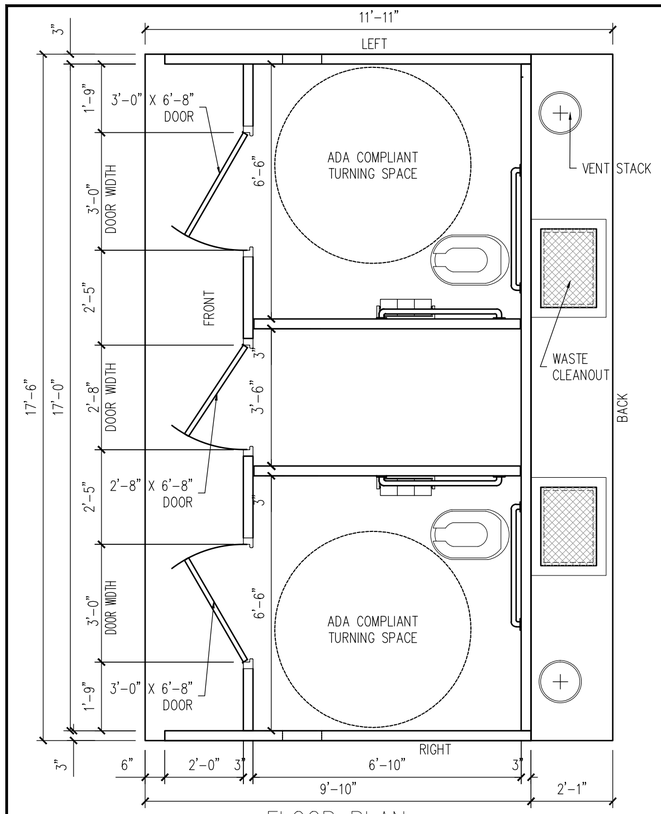
Exhibit E - Precast Concrete Restroom Relocation and Installation Instructions

1. Contractor to remove and relocate the existing precast concrete restroom within the park facilities from Site #4 to Site #5. Refer to Construction Documents sheet CS-06 for existing and proposed restroom location.
2. Precast concrete restroom to be brought to the Site #5 and set upon a level and compacted stone sub-base with up to a 100 ton crane, all included in the bid price.
3. Contractor responsible for site clearing, rough grading and excavation for restroom sub-base.
4. Building shall bear fully on a bed of crushed 3/8" stone base that is at least one foot larger in all directions than the footprint of the building.
5. Stone base shall be a minimum of 6" thick or down to firm sub grade. Soil under stone shall be compacted to have minimum bearing of 1,500 pounds per square foot.
6. Contractor responsible to obtain Building Permit for the restroom installation and pay all related costs/fees. Contractor also responsible to obtain and pay all related costs/fees for any building, plumbing and electrical engineering plans if required by Building Services for permitting.
7. Existing precast concrete restroom vault to be pumped out, cleaned and filled with clean fill material which must be compacted every foot.
8. Existing toilet and waste cleanout openings to the covered with reinforced concrete, rebars to be epoxy into the existing restroom concrete floor. Waste cleanout covers to be removed.
9. Contractor to replace the 2 existing restroom doors/frames with new equal doors. All door hardware (door locks, hinges, door closers, door seals and door sweeps) must be replaced with equal hardware. Janitor's door to remain.
10. Wall vent screens must be removed and replaced with new screens (including screen frame).
11. All existing restroom accessories to be safely removed and delivery to the Office of Parks & Trails. Refer to item #13 below for new plumbing fixtures and accessories being furnished and installed by contractor.
12. Whole restroom building (exterior/interior) including all building components, (doors, vent stacks, roof, etc.) to be pressure washed and painted. Match existing colors.

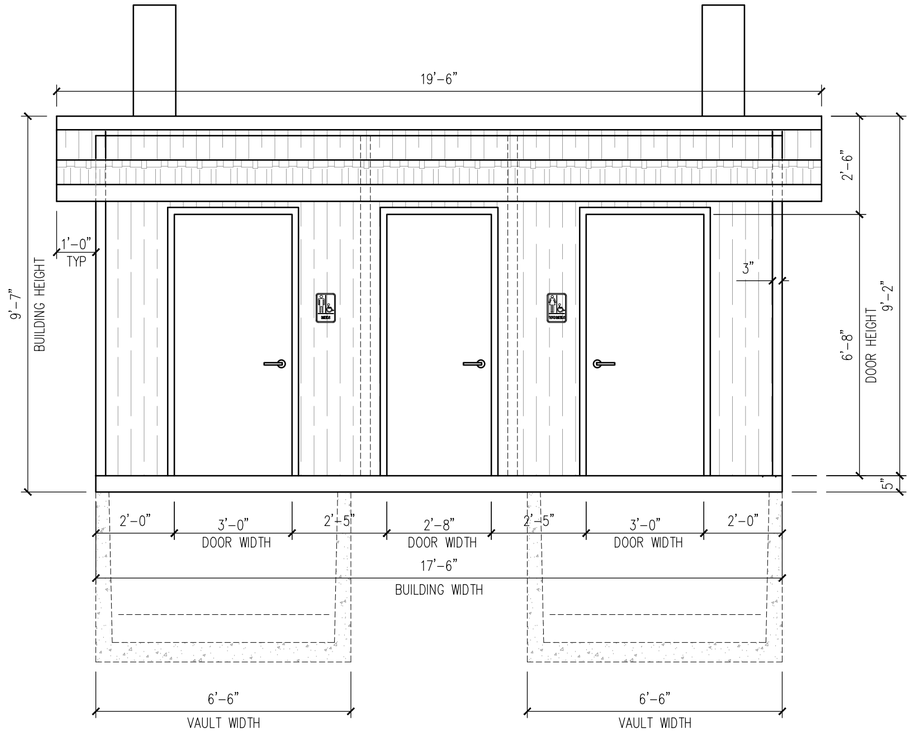
    Paint:
    a. Interior concrete surfaces:
        i. Interior floors will be a two component, water based polyamide epoxy floor coating. Approved manufacturers: Sherwin Williams (Floor-Plex 7100), Armorpoxy or approved equal.
        ii. Interior walls and ceilings will be a pre-catalyzed water based epoxy. Approved manufacturers: Sherwin Williams or approved equal.
    b. Exterior concrete surfaces:
        i. Exterior slab top surface will be a two component, polyamide epoxy floor coating. Approved manufacturers: Sherwin Williams, Armorpoxy or approved equal.
        ii. Exterior walls and roof will be a water-based acrylic, water-repellent penetrating stain. Approved manufacturers: United Coatings (Canyon Tone Stain), Sherwin Williams (H&C Concrete stain) or approved equal.

13. Prefabricated restroom, contractor to furnish and install:
    - Plumbing Fixtures: All fixtures must be ADA compliance.
    - ADA toilets and lavatories.
    - Sloan Sensor Faucets and Sensor Flush Valves with Hardwire Power Supply, Flush Valves to include Override Flush Button. Refer to attached specifications.
    - Hand dryers: Xlerator Model XL-BW, refer to attached specifications.
    - Drinking Fountain (High/Low): ADA compliance, must be furnished and installed on the western side of restroom building. Elkay Model VRCTL8WSK, refer to attached specifications.
    - ADA Grab Bars
    - Soap dispensers: Stainless Steel, refillable
    - Toilet Paper Dispensers: Stainless Steel, Jumbo Roll Type
    - Mirror
    - Baby changing station
    - Door locks to be provided with a minimum of 4 master keys.

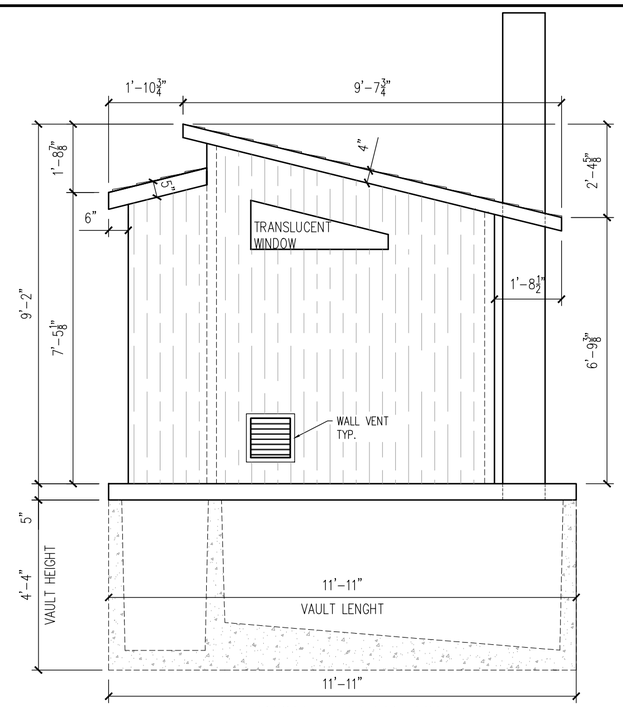
14. Contractor responsible to connect all plumbing fixtures to the proposed well and septic system.



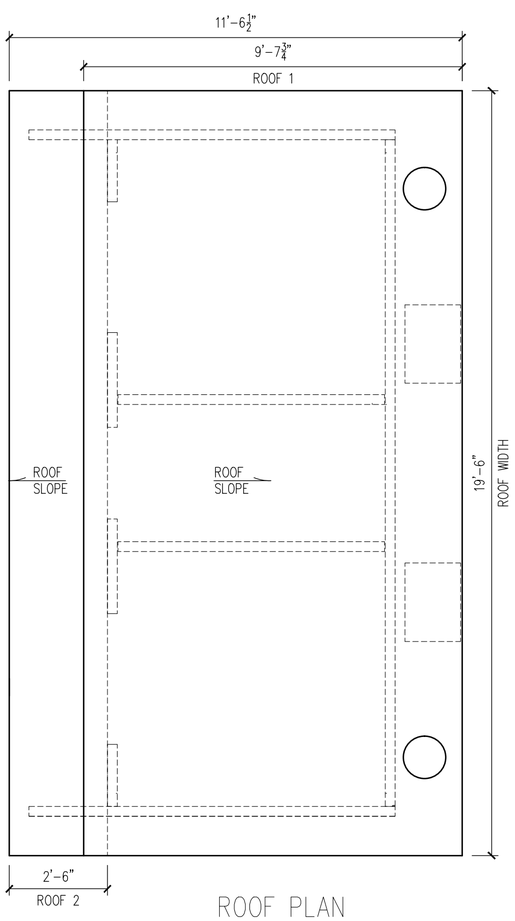
FLOOR PLAN



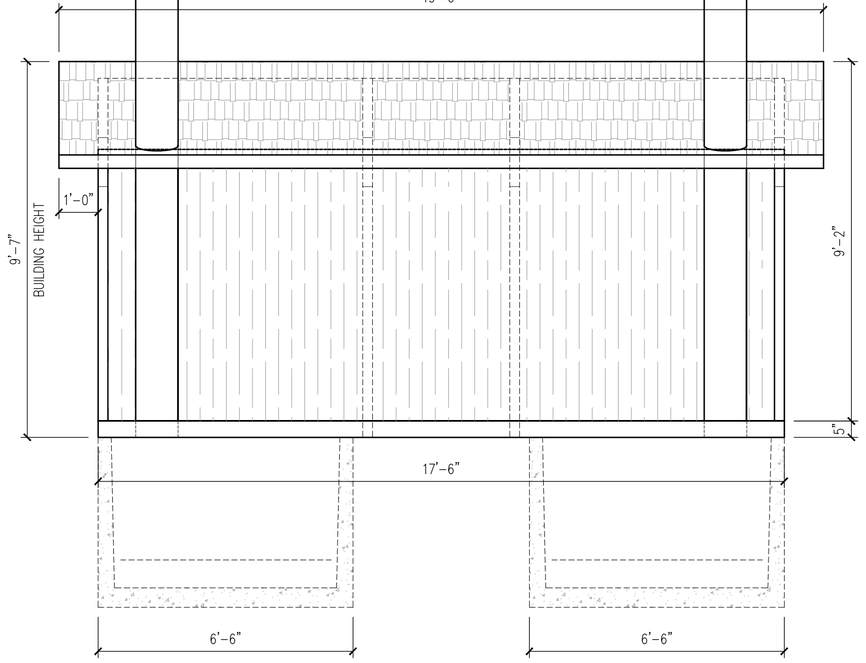
FRONT ELEVATION



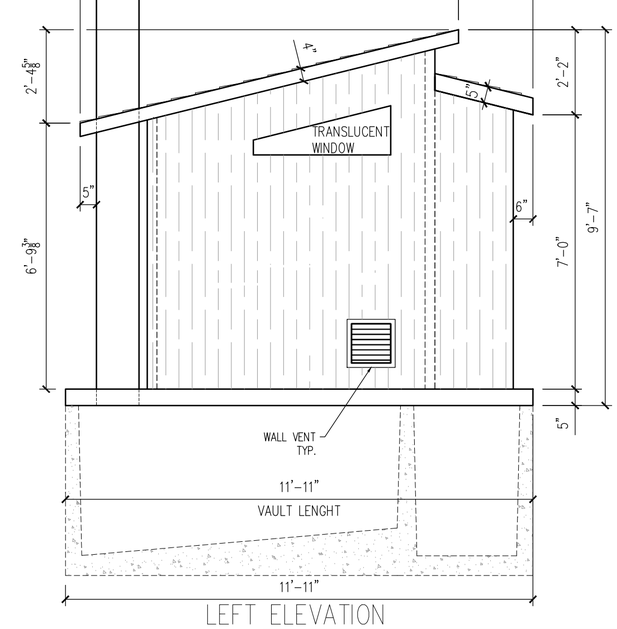
RIGHT ELEVATION



ROOF PLAN



REAR ELEVATION



LEFT ELEVATION

BUILDING LAYOUT

NOTE: FINISH OPTIONAL, VARIOUS FINISHES ARE AVAILABLE

- ☐ EASI-BRICK
- ☐ BARNBOARD
- ☐ BROOM
- ☐ OTHER: _____

GENERAL NOTES:

1. ALL REQUIRED OPENINGS FOR ELECTRIC, MECHANICAL, LOUVERS, ETC. MUST BE SIZED AND LOCATED BY BUYER ON THIS DRAWING (OPENING SIZES AND LOCATIONS MAY HAVE TO BE ALTERED IF THEY INTERFERE WITH CONNECTIONS OR REINFORCING
2. ALL VIEWS ARE FROM EXTERIOR
3. A SIGNED COPY MUST BE RETURNED BEFORE BUILDING CAN BE RELEASED FOR PRODUCTION

MESSAGE CENTER

BUILDING FINISH –

BUILDING STAIN –

DOOR COLOR –

BUILDING WEIGHT –

CUSTOMER APPROVAL

APPROVED BY: DATE:

EASI-SET® WORLDWIDE
5119 Catlett Rd. • Midland, VA 22728 • info@EasiSet.com
www.EasiSet.com • 800-547-4045 • Fax 540-439-2541

INI.	REV	DESCRIPTION	DATE
–	△	–	–
–	△	–	–
–	△	–	–
–	△	–	–
–	△	–	–

PROJECT: 11'-1" x 17'-6" x 9'-7" EASI-SET SIERRA VAULT RESTROOM BUILDING

CONTRACTOR: CONTRACTOR

BUILDING LAYOUT

JOB # –

DRAWN BY MJR

CHECK BY KSS

ISSUE DATE 07.08.14

SHEET LAYOUT

Code No. 0816496
Rev. 5 (12/17)

INSTALLATION INSTRUCTIONS FOR SLOAN SF SERIES ELECTRONIC SENSOR ACTIVATED LAVATORY FAUCETS

SF-2100 Series
Adapter Powered with Battery Backup, Sensor Activated, Pedestal Style Lavatory Faucets

SF-2150 Series
Battery Powered, Sensor Activated, Pedestal Style Lavatory Faucets

SF-2300 Series
Adapter Powered with Battery Backup Sensor Activated, 4" Centerset Lavatory Faucets

SF-2350 Series
Battery Powered, Sensor Activated 4" Centerset Lavatory Faucets

SF-2200 Series
Adapter Powered with Battery Backup Sensor Activated, Gooseneck Style Lavatory Faucets

SF-2250 Series
Battery Powered, Sensor Activated Gooseneck Style Lavatory Faucets

SF-2400 Series
Adapter Powered with Battery Backup, Sensor Activated, Pedestal Style Lavatory Faucets

SF-2450 Series
Battery Powered, Sensor Activated, Pedestal Style Lavatory Faucets

LIMITED WARRANTY

Sloan Valve Company warrants its SF Series Electronic Hand Washing Faucets to be made of first class materials, free from defects of material or workmanship under normal use and to perform the service for which they are intended in a thoroughly reliable and efficient manner when properly installed and serviced, for a period of one year from date of purchase. During this period, Sloan Valve Company will, at its option, repair or replace any part or parts which prove to be thus defective if returned to Sloan Valve Company, at customer's cost, and this shall be the sole remedy available under this warranty. No claims will be allowed for labor, transportation or other incidental costs. This warranty extends only to persons or organizations who purchase Sloan Valve Company's products directly from Sloan Valve Company for purpose of resale. This warranty does not cover the life of the batteries.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN NO EVENT IS SLOAN VALVE COMPANY RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OF ANY MEASURE WHATSOEVER.

PRIOR TO INSTALLATION

Prior to installing the Sloan SF Series Electronic Lavatory Faucet, install the items listed below. Also, refer to the appropriate rough-in diagram.

- **Plug-In Adapter**
  Models SF-2100/SF-2200/SF-2300/SF-2400 only — Install electrical receptacle(s) for plug-in adapter(s) — 120 VAC, 1 amp service for each 6 VDC plug-in adapter used.
  International models may be supplied with a 220 VAC/VDC transformer.
- Hot and cold water supply lines or tempered water supply line
- Drain lines

Important:

- **INSTALL ALL ELECTRICAL WIRING IN ACCORDANCE WITH NATIONAL/LOCAL CODES AND REGULATIONS.**
- **INSTALL ALL PLUMBING IN ACCORDANCE WITH APPLICABLE CODES AND REGULATIONS.**
- **A 6 VDC STEP-DOWN ADAPTER MUST BE USED FOR HARDWIRE APPLICATIONS.**
- **BEFORE CONNECTING COPPER TUBE(S) OR FLEX HOSE(S) TO SUPPLY STOP(S), FLUSH ALL WATER LINES UNTIL WATER IS CLEAR.**

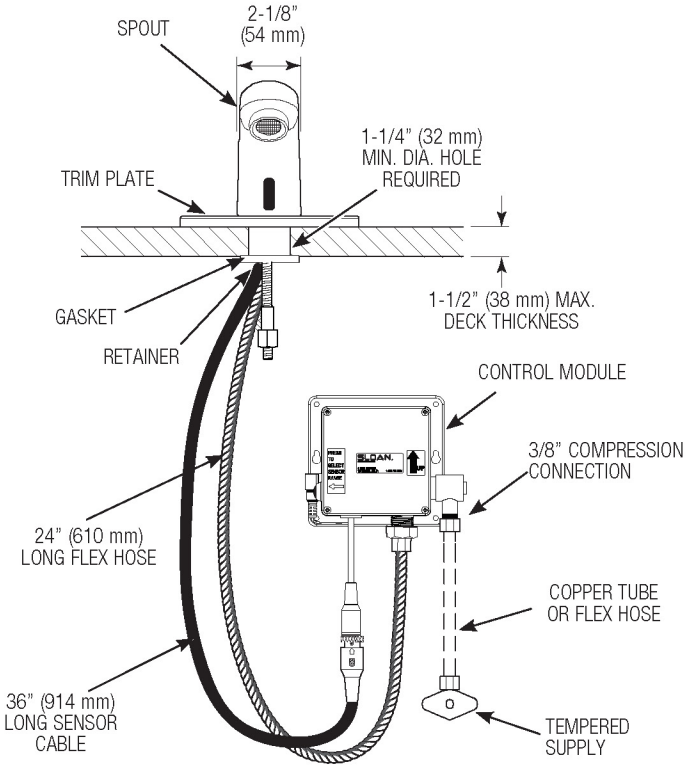
TOOLS REQUIRED FOR INSTALLATION

- Electric drill for drilling anchor holes (1/4" or 6 mm drill bit)
- Straight blade and phillips blade screwdrivers
- Open end wrenches (9, 11, 13, 16, 22 mm)

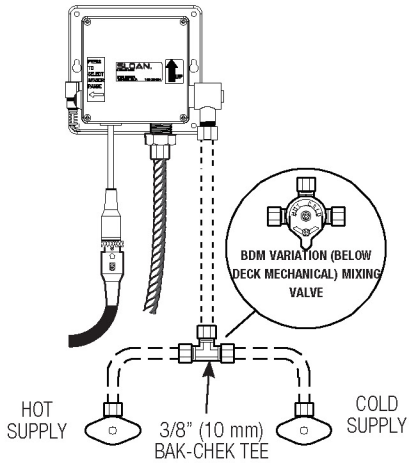
The components supplied with International Models of the SF Series Faucets may vary from what is shown in this manual. Consult factory to identify variations that may apply to your market.

FAUCET ROUGH-IN

SF-2100 / SF-2150 Series

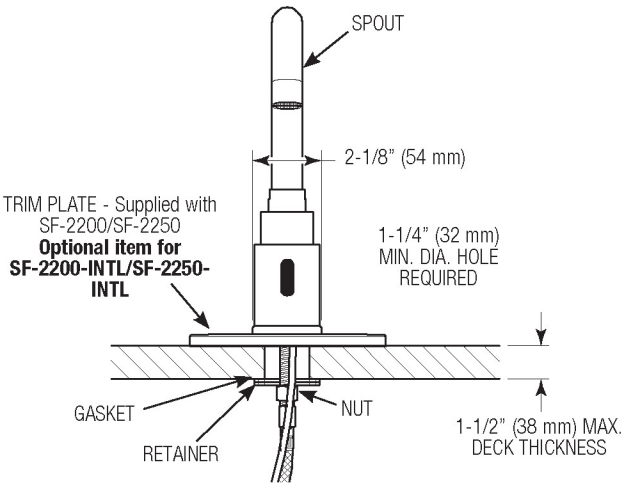


HOT AND COLD WATER SUPPLY APPLICATIONS

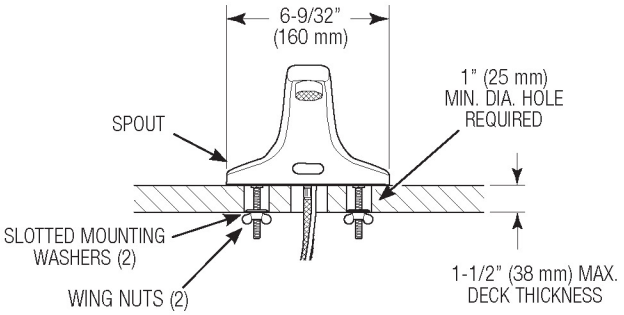


COPPER TUBES OR FLEX HOSES - **Flex Hoses Supplied Only with some International Models.**

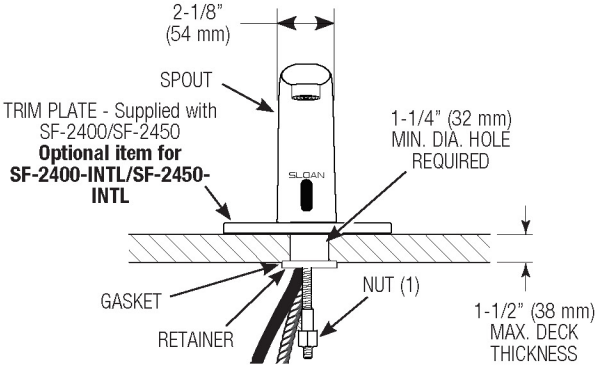
SF-2200 / SF-2250 Series



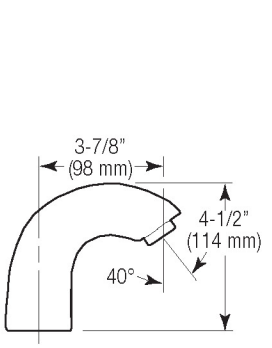
SF-2300 / SF-2350 Series

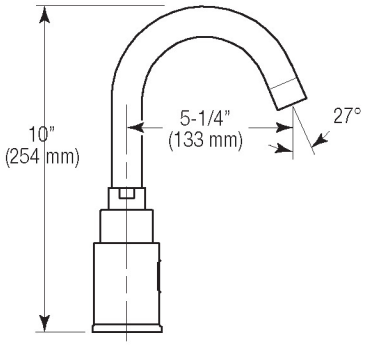


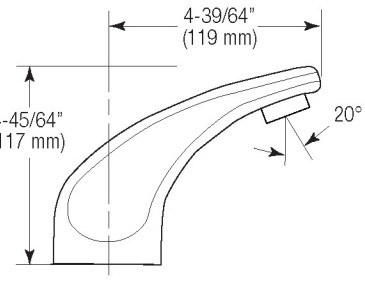
SF-2400 / SF-2450 Series

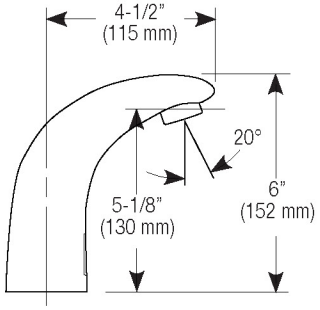


SIDE VIEW

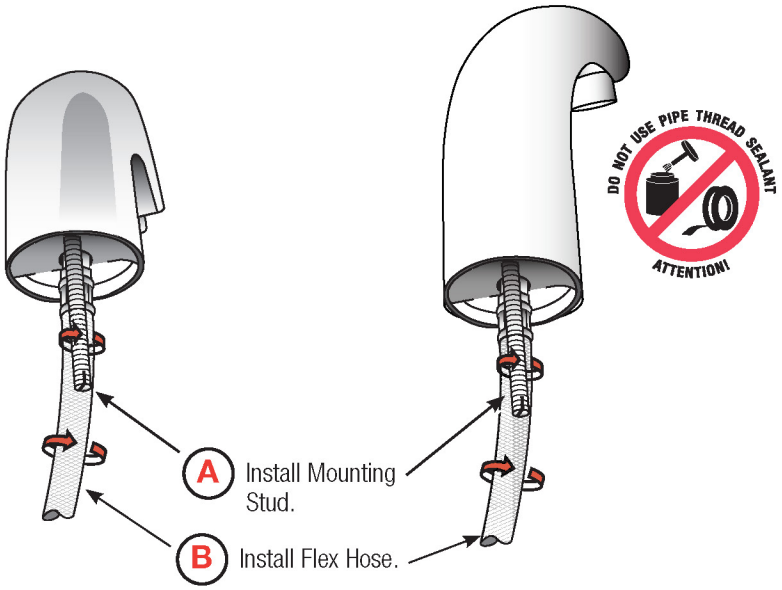




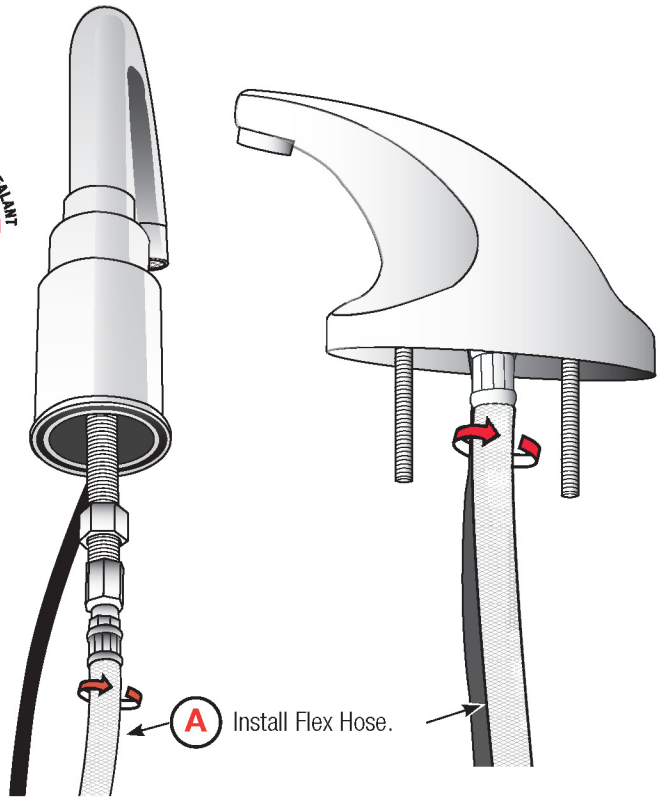




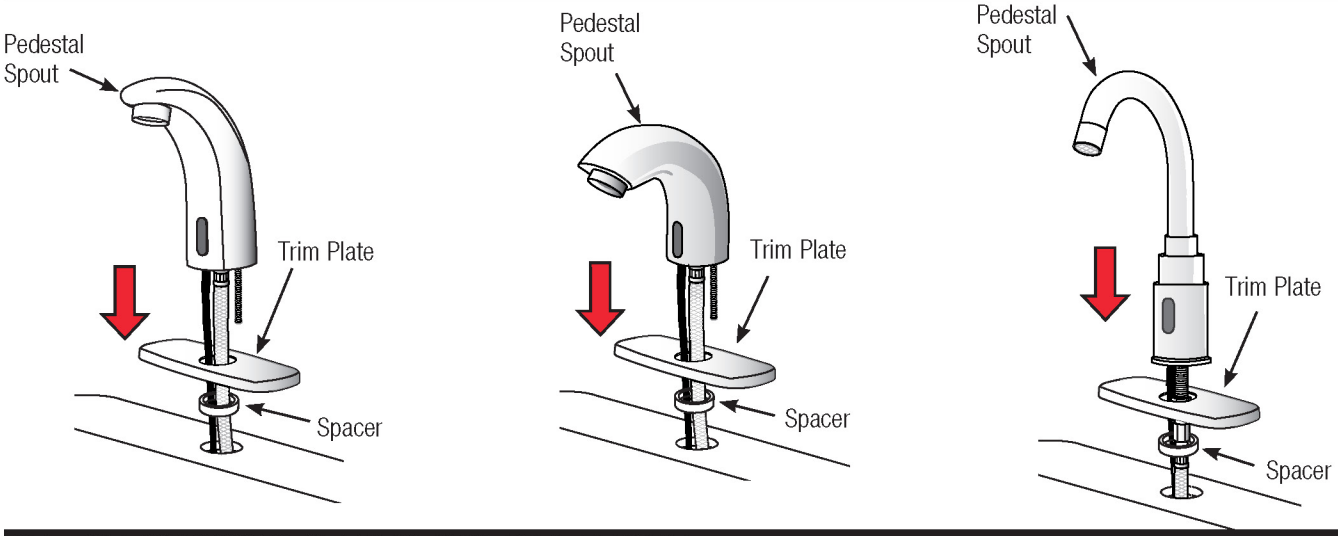
1A - SF-2100/2150 & SF-2400/2450 SERIES: INSTALL FLEX HOSE AND MOUNTING STUD



1B - SF-2200/2250 & SF-2300/2350 SERIES: INSTALL FLEX HOSE

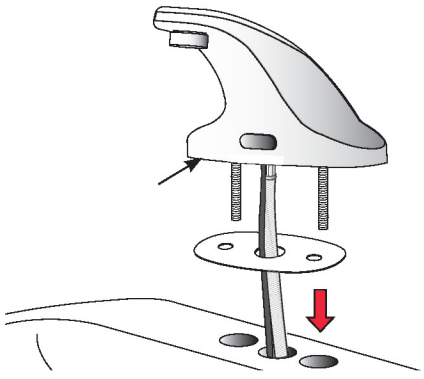


2A - SF-2100/2150, SF-2200/2250, & SF-2400/2450 SERIES: INSTALL SPOUT, TRIM PLATE AND SPACER



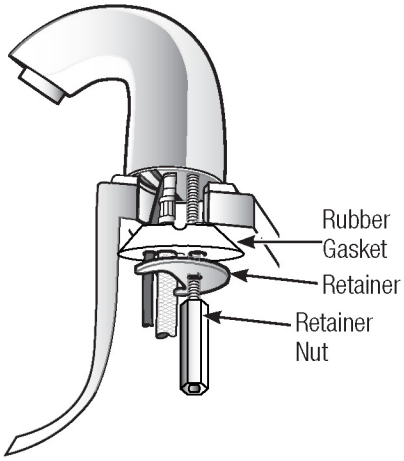
2B - SF-2300/2350 SERIES: INSTALL SPOUT

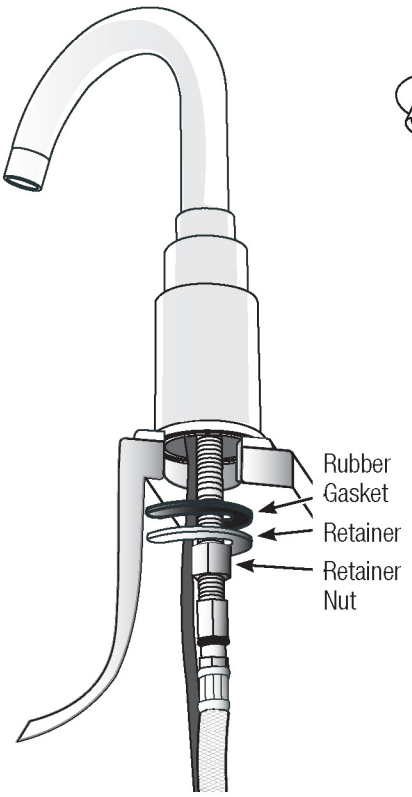
A Apply a bead of plumbers putty around the outside of the Faucet underbody.

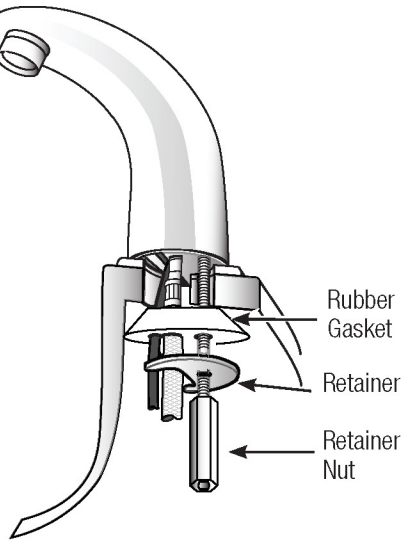


3A - SF-2100/2150 & SF-2200/2250 SERIES: INSTALL RUBBER GASKET, RETAINER, AND RETAINER NUT(S)

A Secure Faucet to the Deck by installing Rubber Gasket, Retainer and Retainer Nut(s). Tighten Retainer Nuts securely. Do not overtighten.

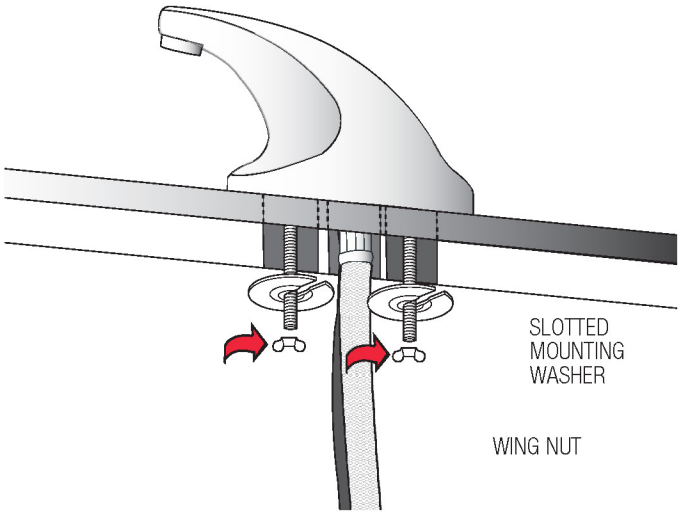






3B - SF-2300/2350 SERIES: INSTALL SLOTTED MOUNTING WASHERS AND WING NUTS

A Secure Faucet to the Deck by installing Slotted Mounting Washers and Wing Nuts. Tighten Wing Nuts securely. Do not overtighten.



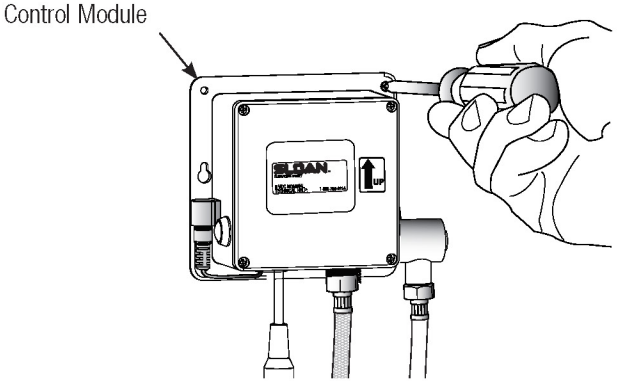
4 - INSTALL CONTROL MODULE IN AN APPROPRIATE LOCATION (SEE ROUGH-INS)

A Using Control Module as a template, mark mounting holes on wall. When installed, Sensor Cable and Flex Hose need some slack.

B Drill 1/4" (6 mm) hole at each mounting hole location.

C Install Plastic Anchors (supplied) into mounting holes in wall.

D Install Control Module to wall using Fasteners supplied.

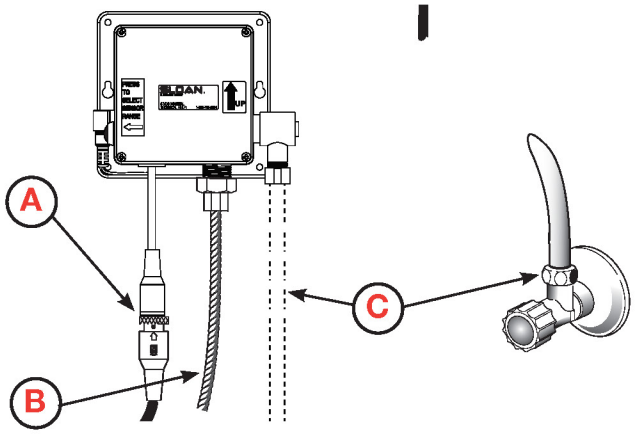


5 - CONNECT SENSOR CABLE AND WATER LINES TO CONTROL MODULE

A Connect Sensor Cable (from Faucet).

B Connect Flex Hose (from Faucet).

C Connect Water Line **(supplied with INTL Models only)** to Supply Stop and Control Module.



6 - INSTALL BATTERIES

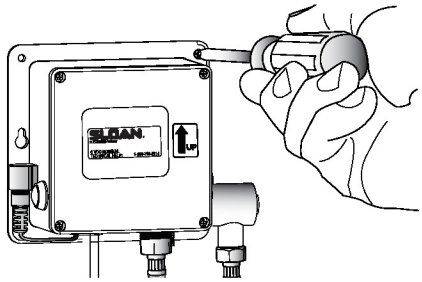
A Loosen Cover Screws and remove Cover from Control Module.

B Remove Battery Compartment, remove compartment lid using screwdriver and install four (4) AA-size batteries (supplied) as indicated by the (+) and (—) symbols inside the Battery Compartment. Replace compartment lid and tighten with screwdriver.

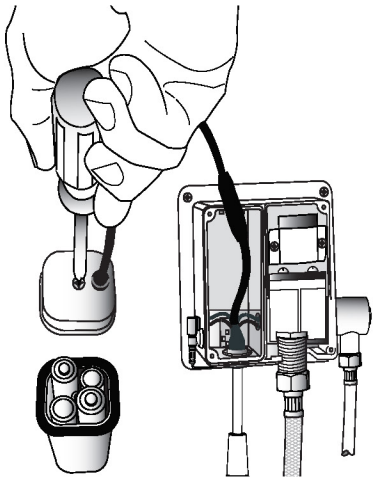
C Reinstall Battery Compartment into the Control Module.

D Reinstall Control Module Cover using all four (4) Screws.

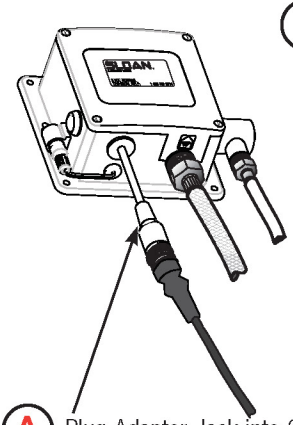
A



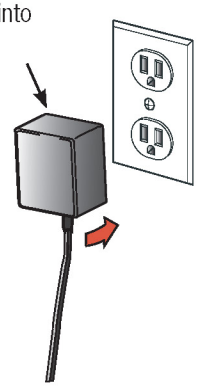
B



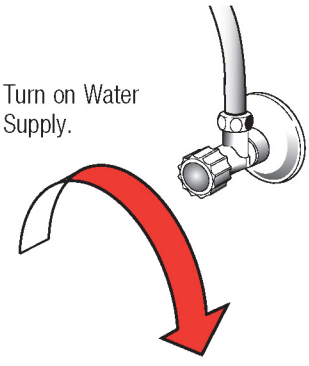
7A - CONNECT ADAPTER (ADAPTER POWERED MODELS ONLY) AND TURN ON WATER SUPPLY



B Plug Adapter into Receptacle.



C Turn on Water Supply.



A Plug Adapter Jack into Control Module.

7B - GANG ADAPTER INSTALLATION

To connect multiple faucets to a single adapter, use the Sloan SFP-35-A Gang Adapter Kit (Purchase Separately).

The SFP-35-A Gang Adapter Kit is supplied with cables to connect up to 6 faucets. To connect up to 8 faucets, purchase 2 additional SFP-38 Cable Splitters separately.

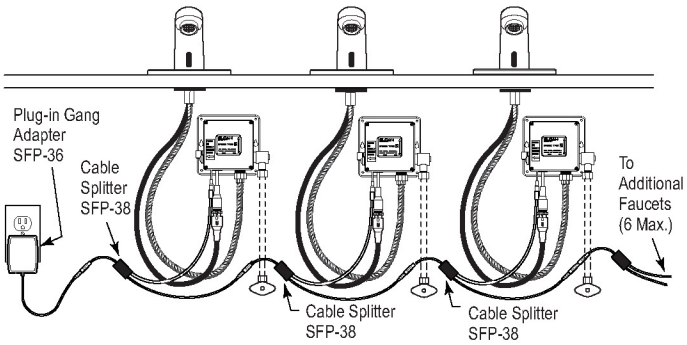
A Connect the Adapter and Cables to the Sensor Faucets as shown below.

For complete installation, refer to instructions packaged with Gang Adapter Kit.

SFP-35-A Gang Adapter Kit is available in 120 VAC only.

!!!!IMPORTANT!!!!

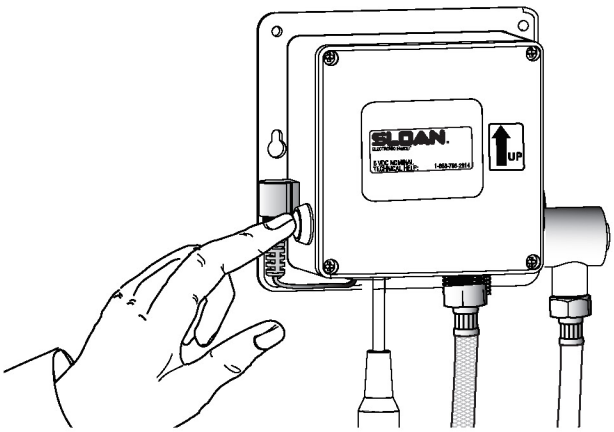
DO NOT PLUG IN THE ADAPTER UNTIL ALL CONNECTIONS ARE MADE



8 - SET RANGE ADJUSTMENT

NOTE: Sensor Range can be adjusted after power is supplied to the Faucet (battery or hardwire).

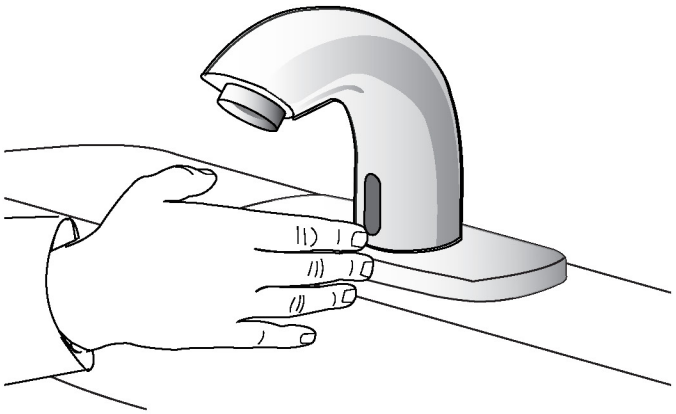
A Hold the black button in until the sensor flashes (approximately 3 - 6 seconds).



B Place your hand (or card) in front of the sensor at the distance you desire the Faucet to activate. Leave hand or card at this location while the sensor range is setting. Remove hand or card when the sensor light turns off. The sensor range is now set.

NOTE: The sensor range is dependent on the distance of your hand or card while the sensor is in range setting mode.

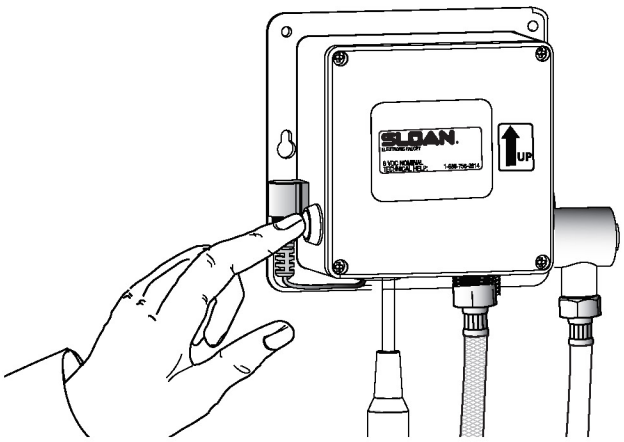
NOTE: If no target is placed in front of the sensor, the sensor range will set to its longest distance.



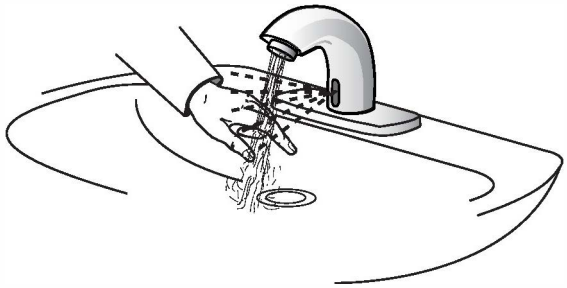
9 - SET WATER FLOW TIME-OUT

NOTE: There are two available time-out settings; 10 seconds and 30 seconds.

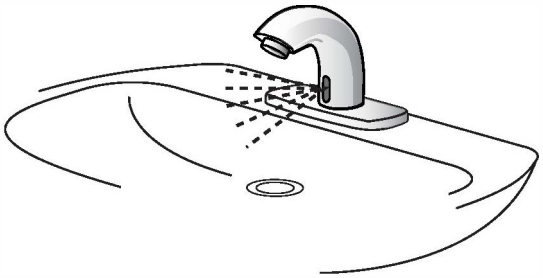
A Hold the black button in for more than six seconds. The water flow time-out setting will change from 30 seconds to 10 seconds or from 10 seconds to 30 seconds.



10 - TEST FAUCET OPERATION



1. Place hands under faucet. Solenoid valve should "click," LED in sensor window should blink once and water should flow from the spout.



2. When hands are removed, the water flow should stop.

CARE AND CLEANING OF CHROME AND SPECIAL FINISHES

DO NOT USE abrasive or chemical cleaners (including chlorine bleach) to clean Faucets that may dull the luster and attack the chrome or special decorative finishes. Use **ONLY** mild soap and water, then wipe dry with clean cloth or towel.

While cleaning the bathroom tile, protect the Faucet from any splattering of cleaner. Acids and cleaning fluids will discolor or remove chrome plating.

TROUBLESHOOTING GUIDE

1. Faucet delivers water in an uncontrolled manner.

A. Contact Sloan Valve Company Installation Engineering Department (see below).

2. Faucet does not deliver any water when Sensor is activated.

INDICATOR: Solenoid valve produces an audible "CLICK."

A. Water supply stop(s) closed. Open water supply stop(s).

B. Water strainer in control module is clogged. Close supply stops and remove water inlet line at control module. Remove, clean and reinstall strainer and water inlet line. Replace strainer if required.

INDICATOR: Solenoid valve DOES NOT produce an audible "CLICK."

A. Batteries low (battery powered models). Replace batteries.

B. Power failure (adapter powered models). Check power supply.

3. Faucet delivers only a slow flow or dribble when Sensor is activated.

A. Water supply stop(s) are partially closed. Completely open water supply stop(s).

B. Water strainer in control module is clogged. Close supply stops and remove water inlet line at control module. Remove, clean and reinstall strainer and water inlet line. Replace strainer if required.

C. Aerator is clogged. Remove, clean, and reinstall aerator. Replace aerator if required.

D. Valve may be obstructed. Contact Sloan Valve Company Installation Engineering Department (see below).

4. Faucet does not stop delivering water or continues to drip after user is no longer detected.

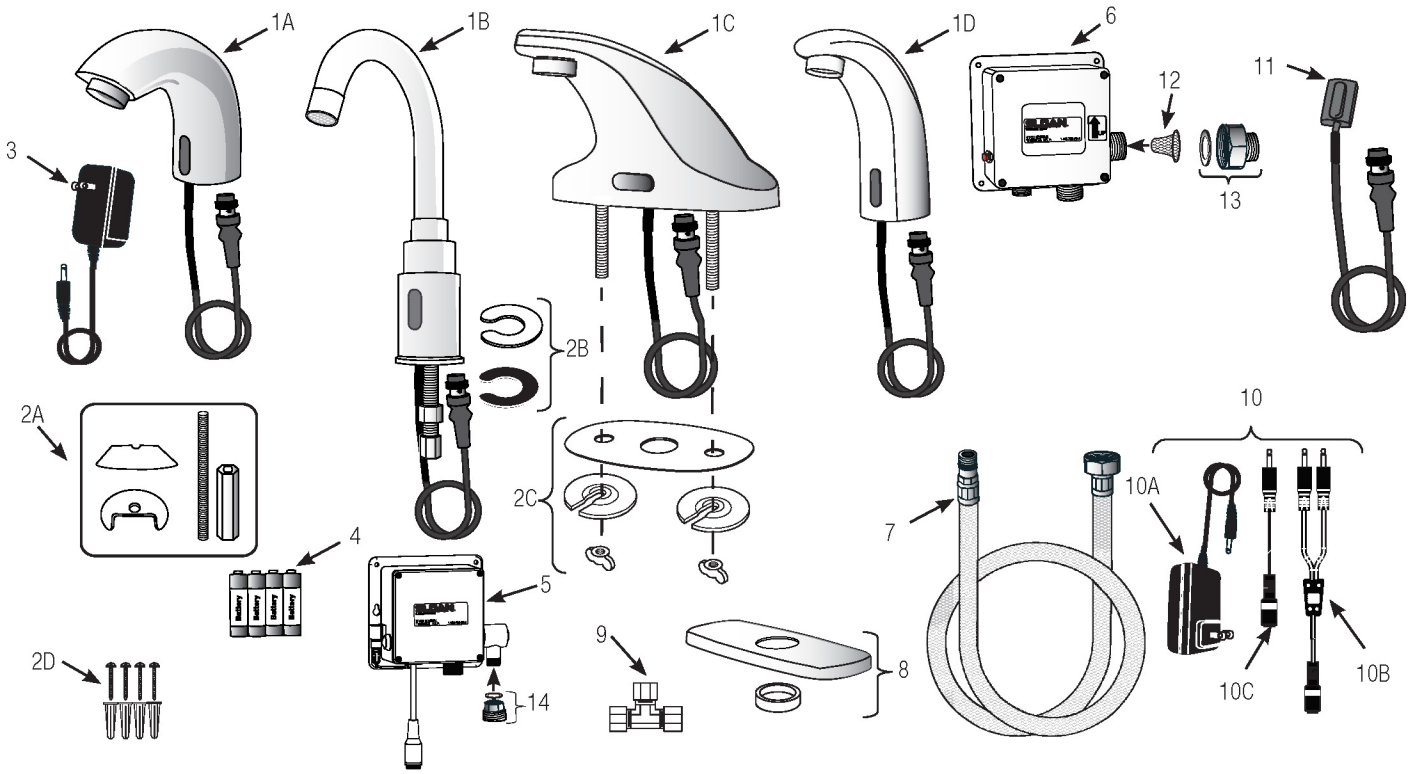
A. Valve is not sealing. Contact Sloan Valve Company Installation Engineering Department (see below).

5. The water temperature is too hot or too cold on a Faucet connected to hot and cold supply lines.

A. Supply Stops are not adjusted properly. Adjust Supply Stops.

When assistance is required, please contact Sloan Valve Company Installation Engineering Department at:
1-888-SLOAN-14: (1-888-756-2614)

PARTS LIST



Item No.	Part No.	Description
1A	—	Pedestal Faucet Assembly w/ Outlet (Models SF-2100/SF-2150)
1B	SFP-12	Gooseneck Faucet Assembly w/ Outlet (Models SF-2200/SF-2250)
1C	—	Faucet Assembly w/ Outlet (Models SF-2300/SF-2350)
1D	—	Pedestal Faucet Assembly w/ Outlet (Models SF-2400/SF-2450)
2A	SFP-44-A	Mounting Hardware Kit, (Models SF-2100/SF-2150 and SF-2400/SF-2450)
2B	SFP-1004-A	Mounting Hardware Kit, (Models SF-2200/SF-2250) includes Washer & Gasket
2C	ETF-546-A	Mounting Hardware Kit, (Models SF-2300/SF-2350) includes Gasket, Washers & Wing Nuts
2D	SFP-5	Screws and Anchors for Control Module
3	SFP-6	Plug-in Adapter (110 VAC/6 VDC) – (USA)
	SFP-20	Plug-in Adapter Type G Rectangular (220 VAC/6 VDC) – (UK)
	SFP-25	Plug-in Adapter Type C Round Pin (220 VAC/6 VDC) – (EUR)
	SFP-26	Plug-in Adapter Type A Flat Blade (220 VAC/6 VDC) – (CH)
4	—	Batteries-AA size (4) included with #4 & #5
5	SFP-40-A	6-Pin Control Module w/ range adjustment button (for use with SFP-41-A Sensor, #11)
6	SFP-8	4 Pin Control Module (for use with SFP-34 Sensor, #11)
7	SFP-10	Flex Hose, Control Module to Spout
8	SFP-11	4" Trim Plate w/ Spacer (not supplied with most international models)
9	ETF-617-A	3/8" Bak-Chek® Tee Compression Fitting

Replacement Aerators & Spray Heads (not shown)

Models: SF-2100/2150, SF-2300/2350 & SF-2400/2450

SFP-13	0.5 gpm/1.9 Lpm Spray head
SFP-23	2.2 gpm/8.3 Lpm Aerator
SFP-15	0.5 gpm/1.9 Lpm Vandal Resistant Spray Head
SFP- 24	2.2 gpm/8.3 Lpm Vandal Resistant Aerator

Models: SF-2200/2250

SFP-12	Gooseneck Spout w/ outlet
SFP-14	1.5 gpm/5.7 Lpm Laminar Spray Head

Item No.	Part No.	Description
Accessories		
10	SFP-35-A	Gang Adapter Kit (100-240 VAC/ 6 VDC), includes: (1)10-A, (5)10-B and (1)10-C
10A	SFP-36	Plug-in Gang Adapter (100-240 VAC/ 6 VDC)
10B	SFP-38	Cable Splitter, 51"/1300 mm (5 included in kit)
10C	SFP-37	Cable Extension, 51"/1300 mm
Repair Parts		
11	SFP-41-A	Sensor (adjustable range - identified by a 6 pin connector) for use with SFP-40A, #5 (sensor lens Purple)
12	SFP-15	Strainer (located in water inlet of control module) for SFP-8 Module
13	SFP-45-A	Inlet adapter kit for SFP-8, 1/2"-14 NPSM female x 3/8" compression male
14	SFP-1003-A	Hose inlet adapter kit for SFP-40-A, 3/8" comp female x 1/2-14 NPSM (International use)

IMPORTANT: Sloan added the range adjustment feature in August 2008 for faucets made prior to August 2008 use the following replacement items:

11	SFP-34	Sensor (identified by a 4 pin connector) for use with SFP-8, #6 (sensor lens Red)
6	SFP-8	4-pin Control Module-for use with SFP-34 Sensor
	SFP-4	(not shown) Mounting kit (models SF-2100 & SF-2400 pre-2010) 2 studs, 2 nuts, 1 gasket and 1 washer

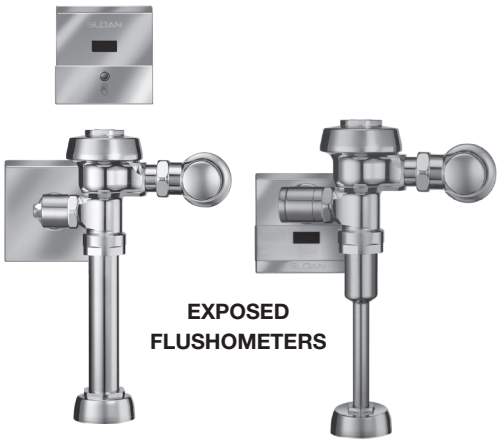
Items without part numbers are not sold separately

SLOAN VALVE COMPANY • 10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131
Phone: 1.800.982.5839 or 1.847.671.4300 • Fax: 1.800.447.8329 or 1.847.671.4380 • sloan.com

Code No: 0816496 – Rev. 5 (12/17)

Code No. 0816164
Rev. 8 (02/17)

INSTALLATION INSTRUCTIONS FOR OPTIMA® SYSTEMS SENSOR ACTIVATED ROYAL® CONCEALED and EXPOSED FLUSHOMETERS



EXPOSED FLUSHOMETERS

CONCEALED FLUSHOMETER

Exposed Closet Flushometers
1½" Top Spud
- Model 110/111 ES-S
- Model 115 ES-S
- Model 116 ES-S

Concealed Closet Flushometers
1½" Rear Spud
- Model 140 ES-S

1½" Top Spud
- Model 153 ES-S

1½" Rear Spud
- Model 152 ES-S

Exposed Urinal Flushometers
1¼" Top Spud
- Model 180 ES-S

¾" Top Spud
- Model 186 ES-S

Concealed Urinal Flushometers
1¼" Rear Spud
- Model 190 ES-S

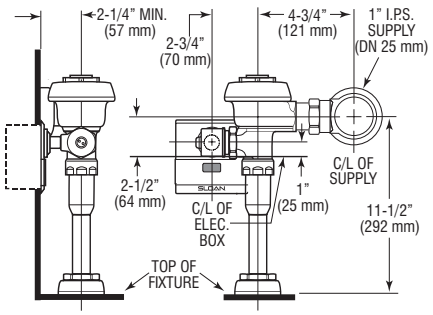
¾" Rear Spud
- Model 195 ES-S

1¼" Top Spud
- Model 192 ES-S

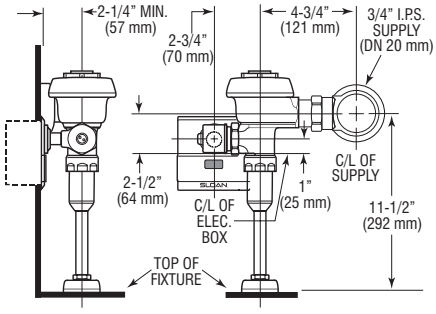
¾" Top Spud
- Model 197 ES-S

URINAL – ROUGH-INS

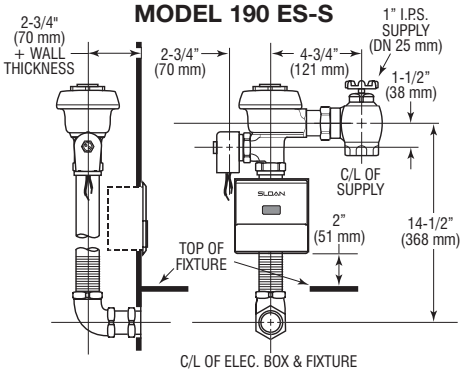
MODEL 180 ES-S



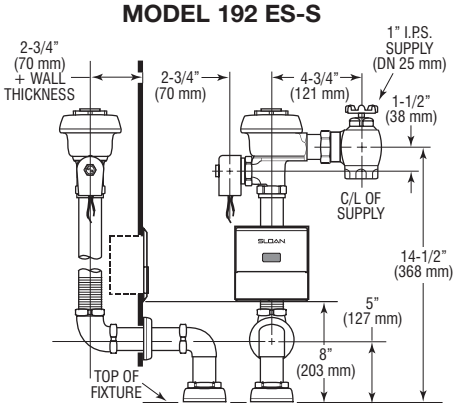
MODEL 186 ES-S



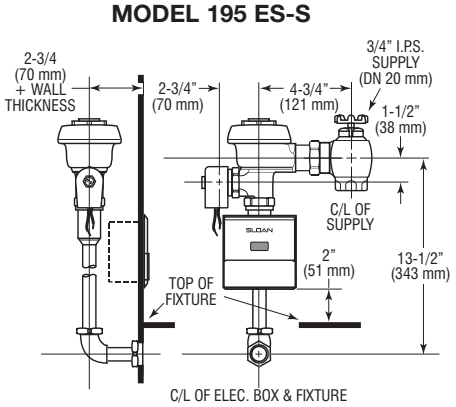
MODEL 190 ES-S



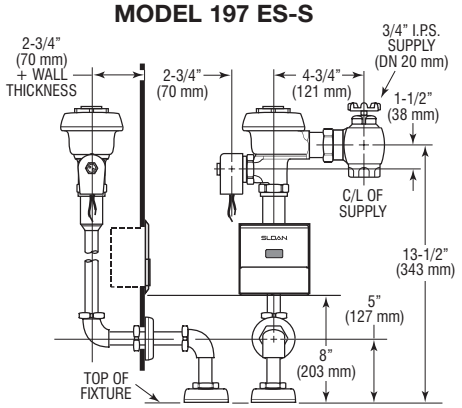
MODEL 192 ES-S



MODEL 195 ES-S



MODEL 197 ES-S

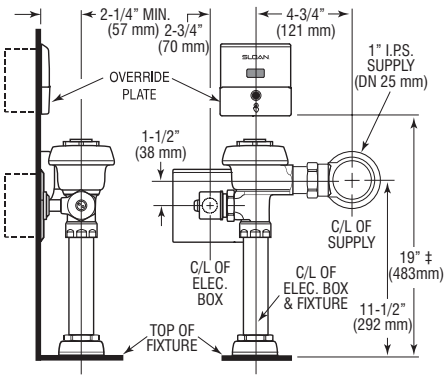


SENSOR LOCATION & POSITIONING IS CRITICAL!

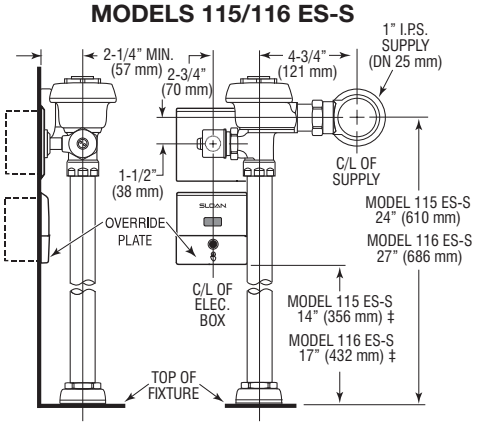
Failure to properly position the electrical boxes to the plumbing rough-in will result in improper installation and impair product performance. All tradesmen (plumbers, electricians, tile setters, etc.) involved with the installation of this product must coordinate their work to assure proper product installation.

WATER CLOSET – ROUGH-INS

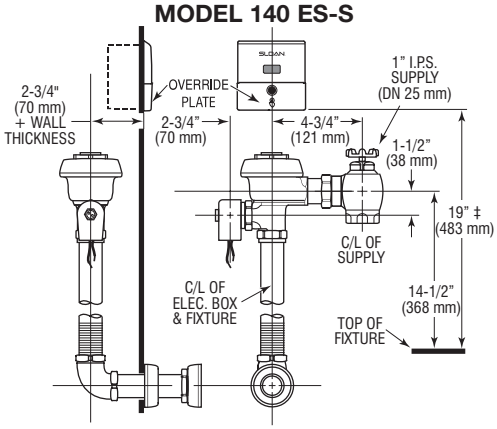
MODELS 110/111 ES-S



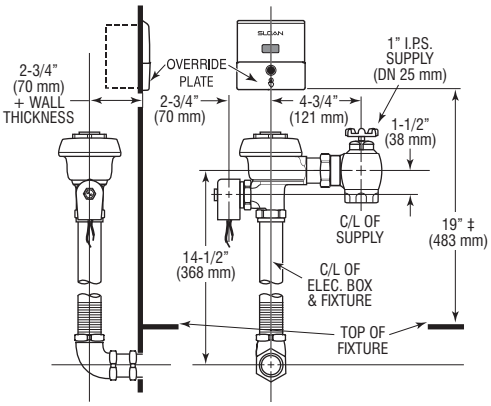
MODELS 115/116 ES-S



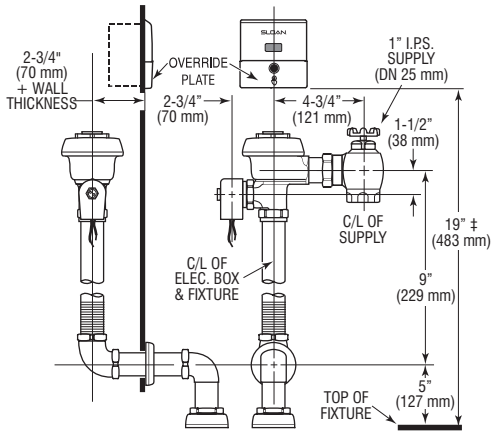
MODEL 140 ES-S



MODEL 152 ES-S



MODEL 153 ES-S



‡ POSITION OF SENSOR BOX CAN BE RAISED OR LOWERED 1" (25 mm) IF IN CONFLICT WITH HANDICAP GRAB BARS.

SENSOR LOCATION & POSITIONING IS CRITICAL!

Failure to properly position the electrical boxes to the plumbing rough-in will result in improper installation and impair product performance. All tradesmen (plumbers, electricians, tile setters, etc.) involved with the installation of this product must coordinate their work to assure proper product installation.

PRIOR TO INSTALLATION

Prior to installing the flushometer, install the items listed below.

- 2-gang electrical box — 4" x 4" x 2-1/2" (102 mm x 102 mm x 64 mm) for sensor; see paragraph entitled "Sensor/Solenoid Operator Box Locations"
- 2-gang electrical box — 4" x 4" x 2-1/2" (102 mm x 102 mm x 64 mm) for transformer; see paragraph entitled "Transformer Installation" (mount in a convenient location)
- Electrical wiring to the transformer box (120 VAC, 2 amp service required for each EL-154, 24 VAC, 50 VA transformer used)
- Urinal fixture
- Drain line
- Water supply line

IMPORTANT:

- **INSTALL ALL ELECTRICAL WIRING IN ACCORDANCE WITH NATIONAL/LOCAL CODES AND REGULATIONS.**
- **INSTALL ALL PLUMBING IN ACCORDANCE WITH APPLICABLE CODES AND REGULATIONS.**

- **WATER SUPPLY LINES MUST BE SIZED TO PROVIDE AN ADEQUATE VOLUME OF WATER FOR EACH FIXTURE.**
- **A 24 VAC STEP-DOWN TRANSFORMER MUST BE USED.**
- **USE APPROPRIATE PRECAUTIONS WHILE CONNECTING TRANSFORMER TO 120 VAC POWER SOURCE.**
- **FLUSH ALL WATER LINES PRIOR TO MAKING CONNECTIONS.**

Sloan flushometers are designed to operate with 15 to 100 psi (104 to 689 kPa) of water pressure. **THE MINIMUM PRESSURE REQUIRED TO THE VALVE IS DETERMINED BY THE TYPE OF FIXTURE SELECTED.** Consult fixture manufacturer for minimum pressure requirements.

Most Low Consumption water closets (1.6 gallon/6.0 liter) require a minimum flowing pressure of 25 psi (172 kPa).

!!! IMPORTANT !!!

NEVER OPEN CONTROL STOP TO WHERE THE FLOW FROM THE VALVE EXCEEDS THE FLOW CAPABILITY OF THE FIXTURE. IN THE EVENT OF A VALVE FAILURE, THE FIXTURE MUST BE ABLE TO ACCOMMODATE A CONTINUOUS FLOW FROM THE VALVE.

If you have questions about how to install your flushometer, consult your local Sloan Representative or call Sloan Technical Support at:

1-888-SLOAN-14 (1-888-756-2614)

!!! IMPORTANT !!!

PROTECT THE FINISH OF THE FLUSHOMETER – DO NOT USE TOOTHED TOOLS TO INSTALL OR SERVICE THESE VALVES. USE A SLOAN A-50 Super-Wrench™, Sloan A-109 Plier Wrench OR SMOOTH JAWED SPUD WRENCH TO SECURE ALL COUPLINGS. ALSO SEE "CARE AND CLEANING" SECTION.

!!! IMPORTANT !!!

THIS PRODUCT CONTAINS MECHANICAL AND/OR ELECTRICAL COMPONENTS THAT ARE SUBJECT TO NORMAL WEAR. THESE COMPONENTS SHOULD BE CHECKED ON A REGULAR BASIS AND REPLACED AS NEEDED TO MAINTAIN THE VALVE'S PERFORMANCE.

TOOLS REQUIRED FOR INSTALLATION

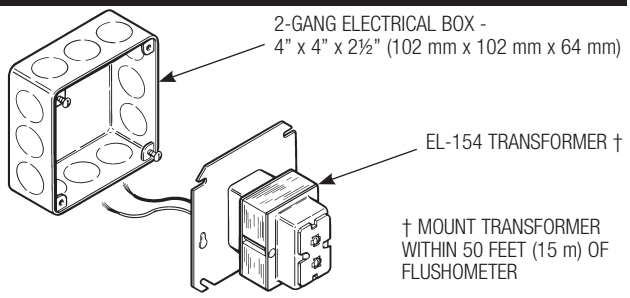
- Slotted screwdriver
- 5/64" hex wrench (supplied)
- Wire stripper/crimping tool
- Sloan A-50 Super-Wrench™, Sloan A-109 Plier Wrench or smooth jawed spud wrench

TRANSFORMER INSTALLATION

Install Transformer (EL-154) on a 2-Gang Electrical Box, 4" x 4" x 2-1/2" (102 mm x 102 mm x 64 mm) in a convenient location; refer to the illustration at upper right side of this page.

Note: One Sloan EL-154 transformer can operate up to ten OPTIMA equipped Flushometers. Run 18-gauge wire from transformer to Flushometer(s). Wire supplied by others. DO NOT supply power to transformer until installation of Flushometer is complete.

Note: A maximum of ten (10) Flushometer units can operate from one (1) Sloan EL-154 Transformer, Class 2, UL Listed, 50 VA (min.) at 24 VAC, plate mounted.



SENSOR/SOLENOID BOX LOCATIONS

Exposed closet models employ two (2) electrical boxes, while concealed closets and exposed/concealed urinal models employ one (1) electrical box. Refer to rough-in illustrations for locations.

ELECTRICAL BOX LOCATION IS CRITICAL — Failure to properly position the electrical boxes to the plumbing rough-in will result in improper installation and impair product performance. All tradesmen (plumbers, electricians, tile setters, etc.) involved with the installation of this sensor activated flushometer must be familiar with the requirements of its installation. Improper installation may void the manufacturer's warranty.

Note: A template is packaged with Models 110/111 ES-S valves to properly position electrical boxes. Refer to rough-in illustrations for installation of electrical boxes.

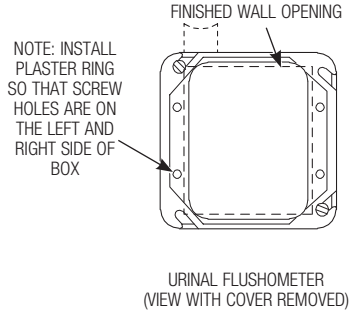
Note: A template is packaged with Models 180 ES-S and 186 ES-S valves to properly position electrical boxes. Refer to rough-in illustrations for installation of electrical boxes.

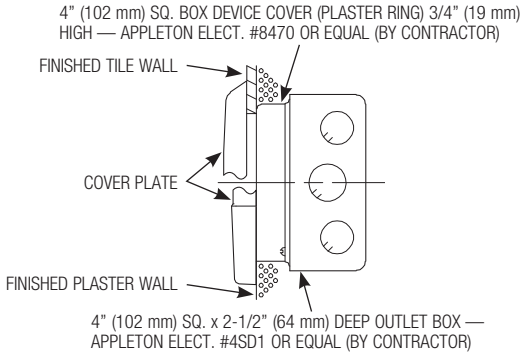
Note: Use Appleton #4SD1 Electrical Box and #8470 Plaster Ring or equivalent.

Note: Install plaster ring so screw holes are on left and right side of box.

Note: Break tiles to allow screw holes in plaster to show.

ELECTRICAL BOX INSTALLATION DIAGRAM





1 - INSTALL OPTIONAL SWEAT SOLDER ADAPTER (ONLY IF YOUR SUPPLY PIPE DOES NOT HAVE A MALE THREAD)

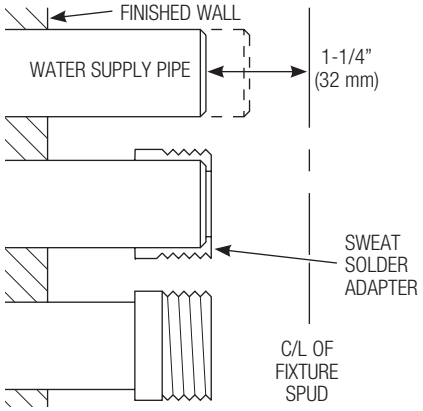
A Measure from finished wall to C/L of fixture spud. Cut pipe 1¼" (32 mm) shorter than this measurement. Chamfer O.D. and I.D. of water supply pipe.

B Slide threaded adapter fully onto pipe.

C Sweat solder the adapter to pipe.

!!! IMPORTANT !!!

WITH THE EXCEPTION OF CONTROL STOP INLET, DO NOT USE PIPE SEALANT OR PLUMBING GREASE ON ANY VALVE COMPONENT OR COUPLING!

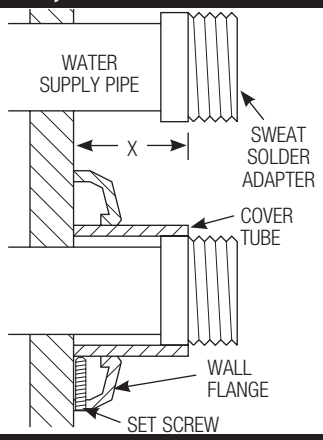


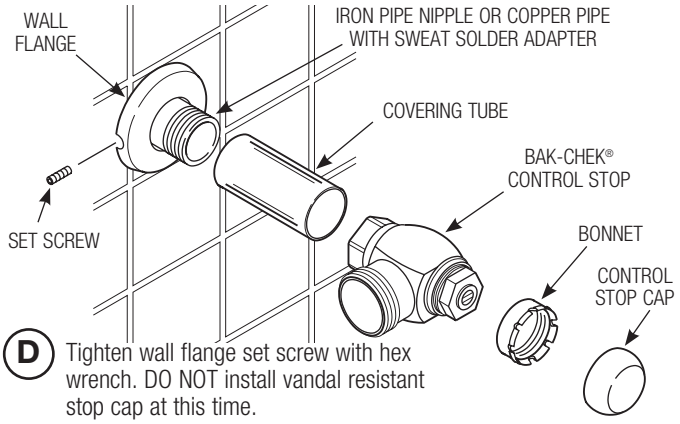
2 - INSTALL COVER TUBE, WALL FLANGE AND CONTROL STOP TO SUPPLY PIPE

A Measure from finished wall to first thread of adapter or threaded supply pipe (dimension "X"). Cut cover tube to this length.

B Slide cover tube over pipe. Slide wall flange over cover tube until against wall.

C Thread control stop onto water supply line. Tighten with a wrench making sure outlet is positioned as required.



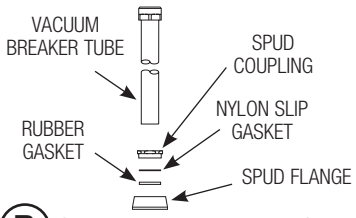


D Tighten wall flange set screw with hex wrench. DO NOT install vandal resistant stop cap at this time.

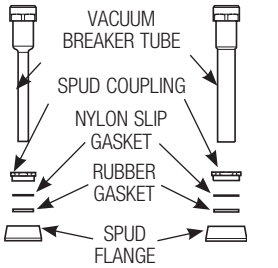
3 - INSTALL VACUUM BREAKER FLUSH CONNECTION

A Assemble pipe, elbows, couplings, nylon slip gaskets, rubber gaskets and flanges as illustrated.

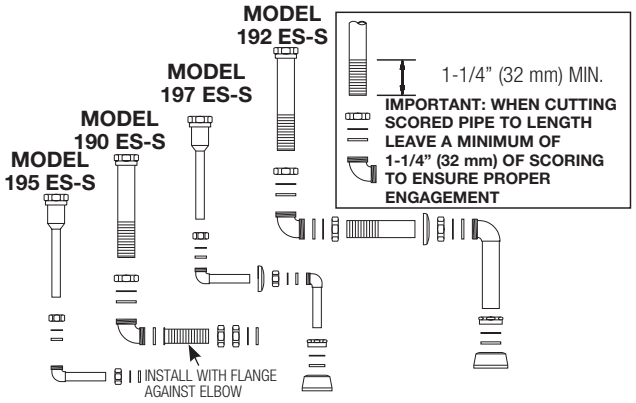
MODELS 110/111 ES-S 115 ES-S 116 ES-S



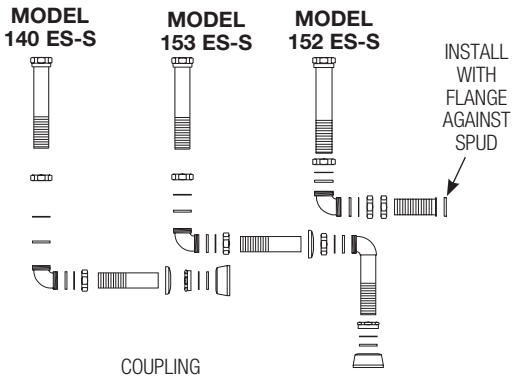
MODEL 186 ES-S **MODEL 180 ES-S**



B Insert tube into fixture spud.



C Hand tighten all couplings.



!!! IMPORTANT !!!

IMPORTANT: BEFORE INSERTING THE SCORED ENDS INTO THE ELBOW, APPLY SEVERAL DROPS OF LOCTITE (SUPPLIED BY SLOAN) TO THE SCORED ENDS OF THE TUBES (FIGURE 3). THIS SEALANT HELPS PREVENT SEPARATION UNDER HIGH-PRESSURE CONDITIONS. DO NOT USE ANY OTHER PIPE SEALANT OR LUBRICANT ON THIS CONNECTION.

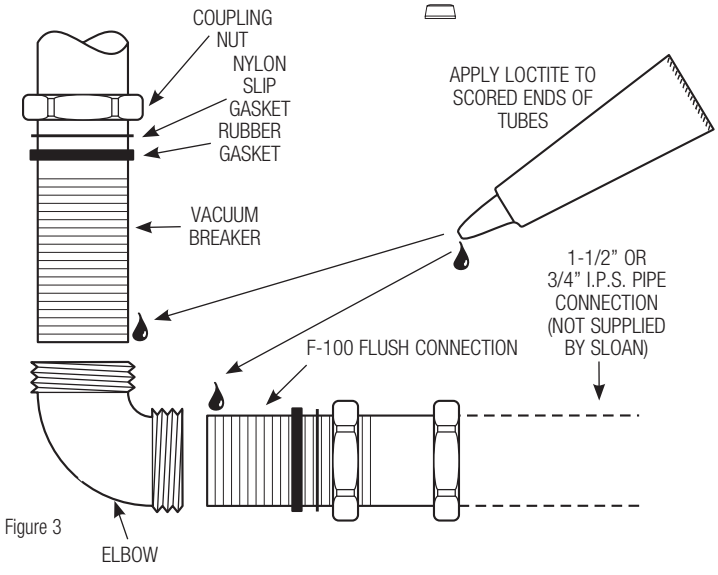


Figure 3

4 - INSTALL FLUSHOMETER

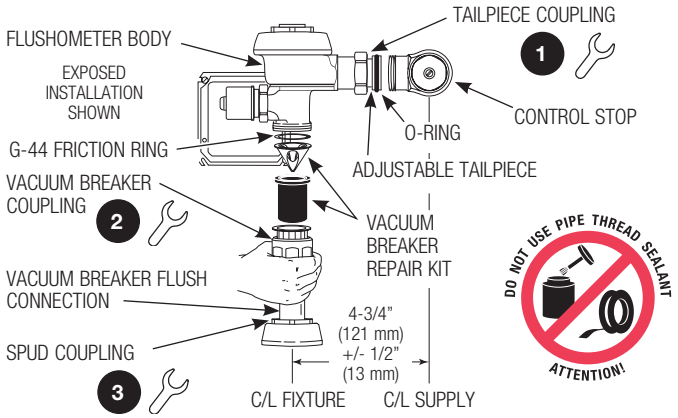
NOTE

For high efficiency urinal flushometers (0.5, 0.25 and 0.125 gpf), it is necessary to first insert the flow control component into the tailpiece assembly. See the H1015A flow control kit and separate instructions for details on how to install.

A Lubricate tailpiece o-ring with water. Insert adjustable tailpiece into control stop. Tighten tailpiece coupling by hand.

B Align flushometer directly above the vacuum breaker flush connection by sliding the flushometer body IN or OUT as needed. tighten vacuum breaker coupling by hand.

C Align flushometer body and securely tighten first the tailpiece coupling **(1)**, then the vacuum breaker and pipe couplings **(2)**, and finally the spud coupling **(3)**. Use a wrench to tighten these couplings in the order shown.



NOTE

Max. adjustment of Sloan Adjustable Tailpiece is ½" (13 mm) IN or OUT from the standard 4¾" (121 mm) (c/l of Valve to c/l of Control Stop).

If roughing-in measurement exceeds 5¼" (133 mm), consult factory for longer tailpiece.

5 - CONNECT SOLENOID OPERATOR

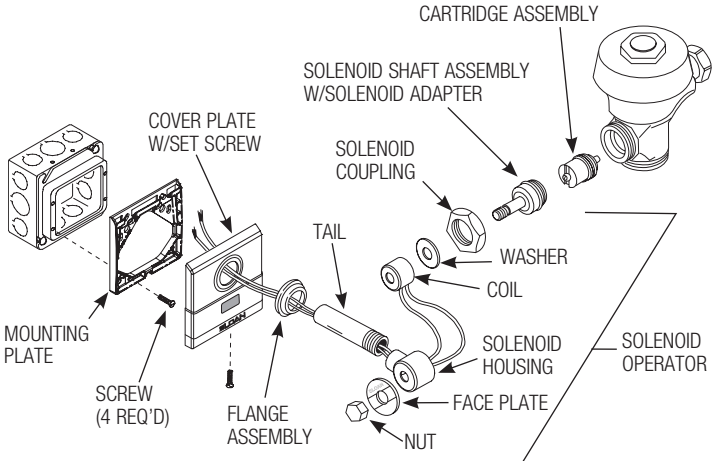
A **Exposed Flushometers** — To ease installation, remove the solenoid operator from the flushometer; however, prior to removal, read and adhere to the following precautions.

- When removing the coil from the solenoid plunger guide, do so only with the power OFF. Failure to turn power off can result in damage to the sensor, solenoid coil and transformer.
- When removing the solenoid operator from the valve, take care not to damage the o-ring seal on the operator assembly.

B **Exposed and Concealed Flushometers** — Install mounting plate to electrical box using the screws provided.

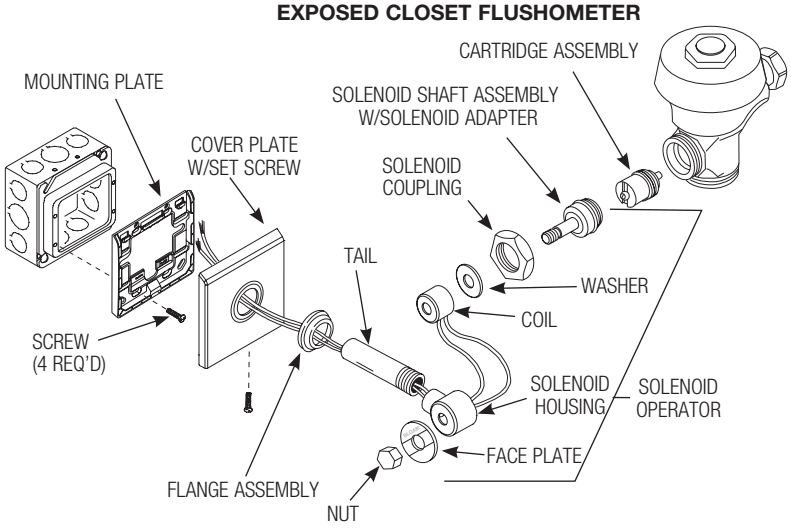
C **Exposed Flushometers** — Slide coil wires through tail and screw tail into solenoid housing. Slide flange assembly and cover plate over tail, respectively.

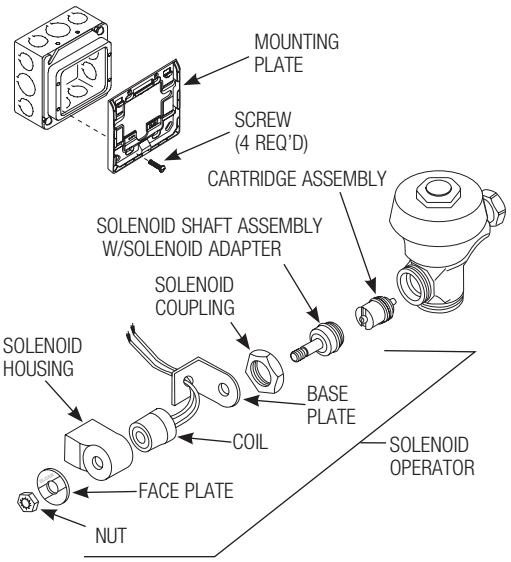
EXPOSED URINAL FLUSHOMETER



CONCEALED FLUSHOMETER

EXPOSED CLOSET FLUSHOMETER



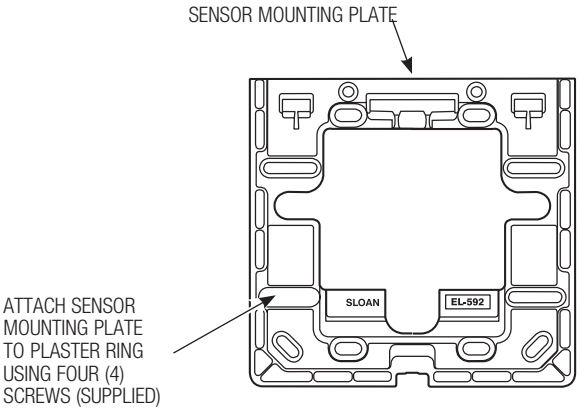


!!! IMPORTANT !!!

DO NOT REMOVE COIL FROM SOLENOID PLUNGER GUIDE UNLESS POWER HAS BEEN DISCONNECTER. FAILURE TO DO SO MAY DAMAGE SENSOR, COIL AND TRANSFORMER.

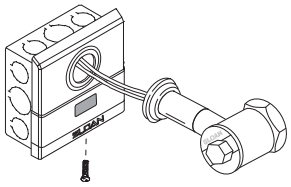
6A - INSTALL SENSOR BOX MOUNTING PLATE (CLOSET FLUSHOMETERS AND CONCEALED URINAL FLUSHOMETERS ONLY)

A Install sensor mounting plate using the screws provided.

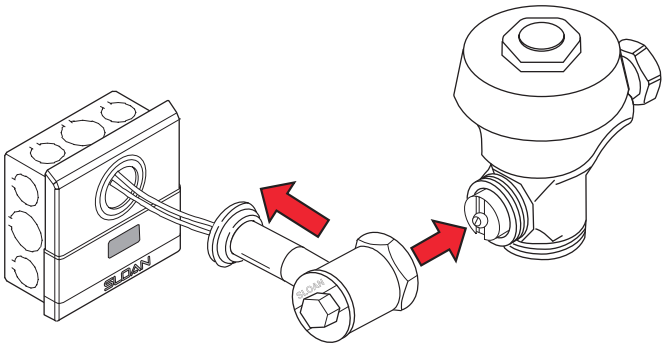


6B - INSTALL SENSOR COVER PLATE, SECURE SOLENOID HOUSING AND COIL ASSEMBLY (EXPOSED URINAL FLUSHOMETERS ONLY)

A Hang sensor/solenoid cover plate onto mounting plate. Push down on cover plate to firmly seat. Secure cover plate with screw, provided.



B Carefully install solenoid to flushometer while aligning tail to solenoid cover plate. Wet o-ring seal of solenoid operator with water to lubricate. Secure solenoid to flushometer by tightening solenoid coupling. Slide solenoid flange assembly against solenoid cover plate and tighten set screw to tail.



7 - ELECTRICAL HOOK-UP

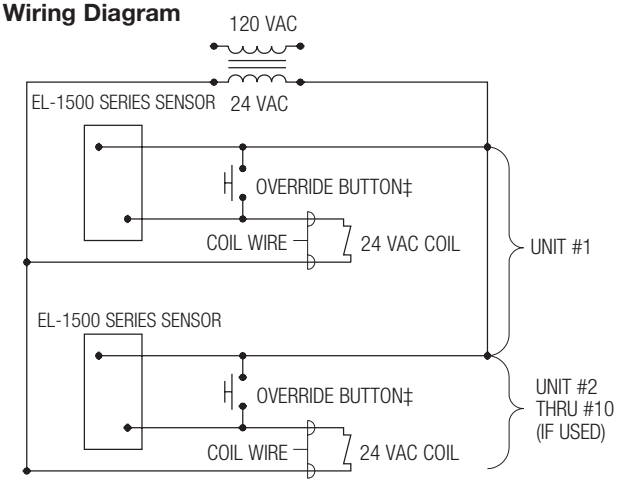
A Be certain power is OFF to prevent damage to electrical components. Connect sensor to transformer and solenoid coil EXACTLY as shown.

B Connect 24 volt source lead to terminal labeled “24 VAC IN” of sensor.

C Connect solenoid lead to terminal labeled “TO VALVE” of sensor.

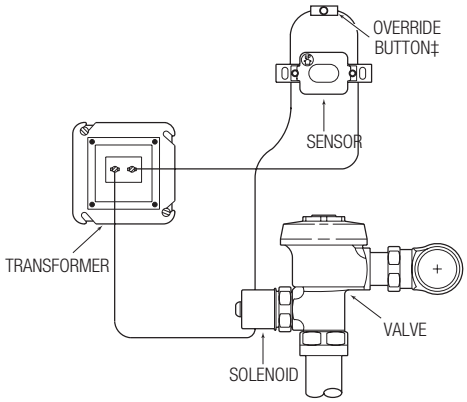
D Connect remaining solenoid lead to remaining 24 volt source lead.

Wiring Diagram

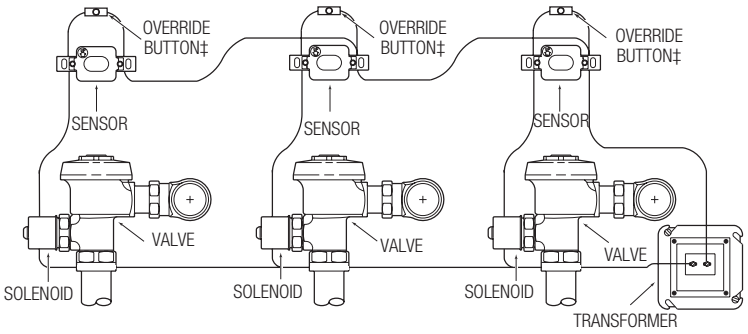


‡ STANDARD ON WATER CLOSETS, OPTIONAL ON URINALS

Wiring Diagram for One Flush Valve

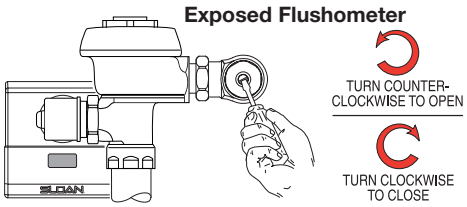


Wiring Diagram for Multiple Flush Valves

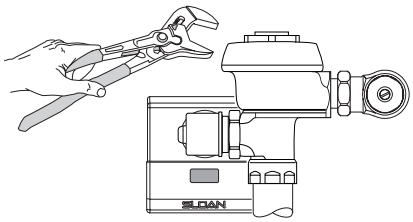


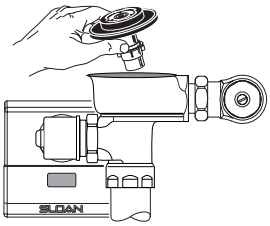
8 - FLUSH OUT SUPPLY LINE

A Make sure control stop is CLOSED.



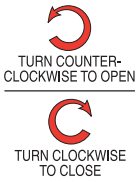
B Remove flushometer cover and lift out inside parts assembly. Install flushometer cover wrench tight.





C Open control stop. Turn on water supply to flush line of any debris or sediment.

D Shut off control stop, remove cover and reinstall inside parts assembly. Install flushometer cover wrench tight. Do not open control stop until Step 11.



9 - POWER AND START-UP MODE

NOTE: IT IS RECOMMENDED THAT ALL ELECTRONIC CONNECTIONS BE TESTED WITH THE WATER SUPPLY OFF.

A Turn power ON. The self-adaptive sensor automatically adapts to the surrounding environment when 24 volt supply is activated. No manual adjustments are required.

B Start-up mode will take approximately one (1) minute to complete its cycle and is important that no non-permanent target is present at this time. A continuous red light visible in sensor window indicates sensor is in the start-up mode. If the red light is flashing, this indicates that the sensor is picking up a target. Unless this target is a permanent fixture in the sensor's environment (i.e., a wall or stall door), it must be removed from the view of the sensor. If this target is permanent, the sensor will adapt itself around this target. In that case, disconnect the 24 volt power supply for twenty (20) seconds or more. Reconnect the 24 volt power supply at the transformer or the fuse box. When the start-up cycle is complete, there will be no light visible in the sensor window.

C Incorrect wiring or a short in the 24 volt power supply is indicated by a continuous warning signal seen in the sensor window. The visible red light flashes an "SOS" signal: three (3) short flashes, three (3) long flashes, three (3) short flashes.

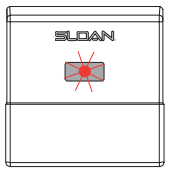
NOTE: IF 24 VOLT POWER SUPPLY IS INTERRUPTED AT ANY TIME FOR MORE THAN TWENTY (20) SECONDS, THE START-UP MODE AUTOMATICALLY REPEATS ITSELF WHEN POWER IS RESTORED.

10 - DETECTION/ACTIVATION

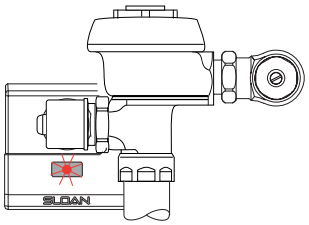
A **Urinals** – When the sensor detects a user, a slow flashing red light appears in the sensor window. After approximately eight (8) seconds, the light will flash rapidly indicating sensor is armed. When the sensor no longer detects a user, the sensor immediately activates the solenoid after a 0.5 second delay.

Water closets – When the sensor detects a user, a slow flashing red light appears in the sensor window. After approximately sixteen (16) seconds, the light will flash rapidly indicating sensor is armed. When the sensor no longer detects a user, the sensor immediately activates the solenoid after a 3 second delay.

EXPOSED WATER CLOSET FLUSHOMETERS AND CONCEALED WATER CLOSET/URINAL FLUSHOMETERS



EXPOSED URINAL FLUSHOMETERS



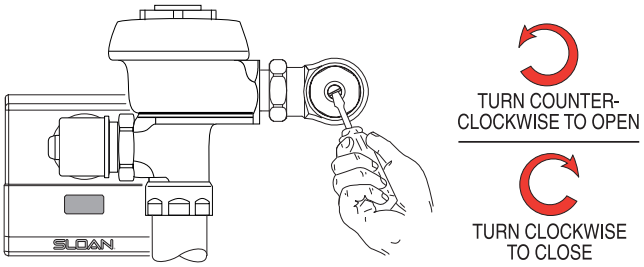
11 - TURN WATER ON AND ADJUST CONTROL STOP

A Adjust control stop to meet the flow rate required for proper cleansing of the fixture. Open control stop COUNTERCLOCKWISE one (1) FULL turn from the closed position.

B Activate flushometer by placing hand in front of sensor lens for sixteen (16) seconds (EL-1500-L for Closet) or eight (8) seconds (EL-1500 for urinal) and then moving it away.

C Adjust control stop after each flush until the rate of flow delivered properly cleanses the fixture.

EXPOSED URINAL FLUSHOMETER



!!! IMPORTANT !!!

SLOAN'S FLUSHOMETERS ARE ENGINEERED FOR QUIET OPERATION. EXCESSIVE WATER FLOW CREATES NOISE, WHILE TOO LITTLE WATER FLOW MAY NOT SATISFY THE NEEDS OF THE FIXTURE. PROPER ADJUST IS MADE WHEN PLUMBING FIXTURE IS CLEANSED AFTER EACH FLUSH WITHOUT SPLASHING WATER OUT FROM THE LIP AND A QUIET FLUSHING CYCLE IS ACHIEVED.

NEVER OPEN CONTROL STOP TO WHERE THE FLOW FROM THE VALVE EXCEEDS THE FLOW CAPABILITY OF THE FIXTURE. IN THE EVENT OF A VALVE FAILURE, THE FIXTURE MUST BE ABLE TO ACCOMMODATE A CONTINUOUS FLOW FROM THE VALVE.

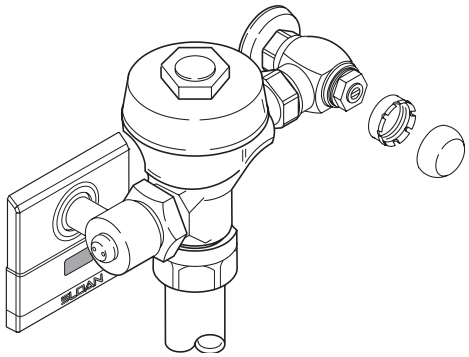
12 - VANDAL RESISTANT CONTROL STOP CAP INSTALLATION AND REMOVAL (EXPOSED MODELS ONLY)

A Thread the plastic sleeve onto the stop bonnet until it is snug (hand tight only; do not use pliers or a wrench).

B Place the metal control stop cap over the plastic sleeve and using the palm of the hand, push or "pop" the cap over the fingers of the sleeve. The cap should spin freely on the insert.

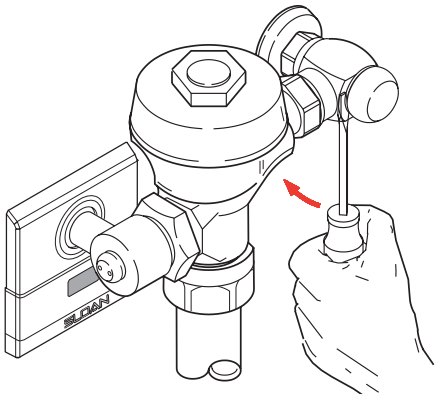
!!! IMPORTANT !!!

DO NOT INSTALL THE CAP ONTO THE SLEEVE UNLESS THE SLEEVE HAS BEEN THREADED ONTO THE CONTROL STOP BONNET. IF ASSEMBLED WHEN OFF OF THE CONTROL STOP, THE SLEEVE WILL NOT COME APART FROM THE CAP.



C To remove vandal resistant stop cap — Using a large flat screwdriver, gently lift the cap from the control stop as follows. Insert the screwdriver blade between the bottom edge of the cap and the flat surface of the control stop body. Using the screwdriver as a lever, push the screwdriver handle straight back toward the wall. Gently lift the cap from the sleeve. It may be necessary to work the screwdriver around the diameter of the cap to further lift the cap from the sleeve.

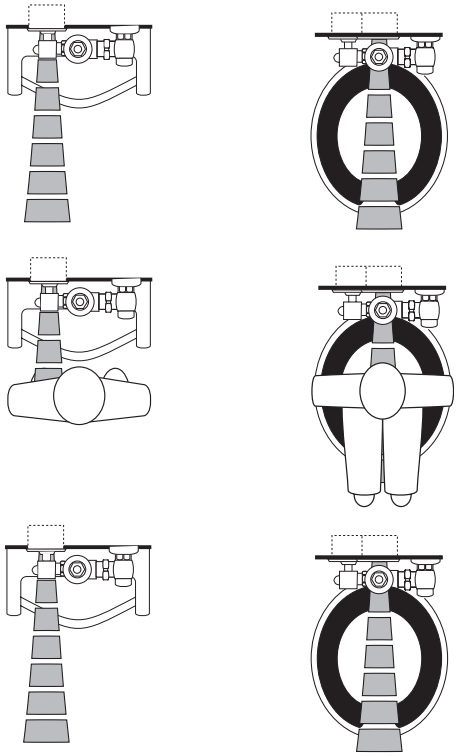
D Once the cap has been lifted away from the control stop, grasp the cap and pull it off the sleeve.



OPERATION

1. A continuous, invisible light beam is emitted from the sensor.

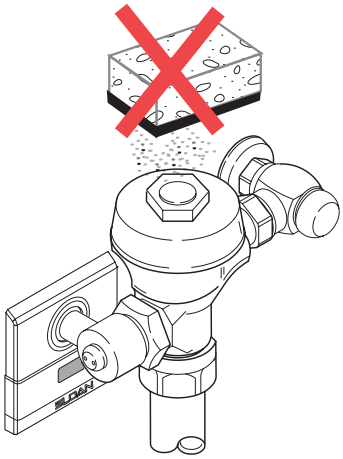
2. When a user enters the beam's effective range, water closets – 22" to 42" (559 mm to 1067 mm) and urinals – 15" to 30" (381 mm to 762 mm), the beam is reflected into the sensor's scanning window and transformed into a low voltage electrical signal that activates a sixteen (16) second (EL-1500-L for Closet) or eight (8) second (EL-1500 for urinal) time delay circuit. The time delay circuit eliminates false operation from passers-by in the restroom. Once the time delay is completed, the output circuit is alerted and continues in a "hold" mode for as long as the user remains within the effective range of the sensor.
3. When the user steps away from the sensor, the loss of reflected light immediately initiates an electrical "one-time" signal that energizes the solenoid operator, and activates the flushometer to flush the fixture. The circuit then automatically resets and is ready for the next user.



CARE AND CLEANING

DO NOT use abrasive or chemical cleaners (including chlorine bleach) to clean flushometers and sensor window as they may dull the luster and attack the chrome or special decorative finishes. Use ONLY soap and water, then wipe dry with clean cloth or towel.

While cleaning the bathroom tile, the flushometer should be protected from any splattering of cleaner. Acids and cleaning fluids can discolor or remove chrome plating.



TROUBLESHOOTING GUIDE

NOTE: URINALS – When the sensor detects a user, a slow flashing red light appears in the sensor window. After eight (8) to ten (10) seconds, the light flashes rapidly to indicate that the sensor is armed. When the sensor no longer detects a user, the sensor immediately activates the solenoid valve after a 0.5 second delay.

WATER CLOSETS – Detection and activation are the same as for the urinal except when the sensor no longer detects an user, the sensor activates the solenoid valve after a three (3) second delay.

1. Valve does not function (red light does not flash when user steps in front of sensor).

A. No power is being supplied to sensor. Ensure that the main power is turned "ON." Check transformer, leads and connections. Repair or replace as necessary.

B. EL-1500 sensor is not operating. Replace EL-1500 sensor.

2. Valve does not function (red light flashes when user steps in front of sensor).

INDICATOR: Red light stops flashing when user steps away and valve makes a "clicking" sound but does not flush.

A. No water is being supplied to the valve. Make certain that water supply is turned "ON" and the control stop is open.

B. EL-128-A cartridge is fouled or jammed. Turn electronic power to valve "OFF" (failure to do so could result in damage to the sensor module). Remove the solenoid operator from the valve and remove the EL-128-A cartridge. Clean and/or repair as necessary.

INDICATOR: The red light stops flashing when user steps away but the valve does NOT make a "clicking" sound and does NOT flush.

A. EL-163-A solenoid shaft assembly is fouled or jammed. Turn electronic power to valve "OFF" (failure to do so could result in damage to the sensor module). Remove EL-101 or EL-166 nut from the solenoid operator. Remove the coil from the solenoid operator. Use a spanner wrench or pliers to remove the EL-163-A solenoid shaft assembly from valve. Clean and/or replace as necessary. Be sure to replace plunger spring when reassembling solenoid shaft assembly.

INDICATOR: The red light flashes three (3) short flashes, three (3) long flashes then three (3) short flashes ("S-O-S") and continues to repeat this cycle even when user steps out of the sensor's detection range.

A. EL-1500 sensor wiring connections are incorrect. Rewire sensor to valve. One solenoid lead connects to the "TO VALVE" connection on sensor. One transformer lead connects to the "24 VAC IN" connection on sensor. Second solenoid lead and second transformer lead connect together.

B. Wiring to sensor is ground shorted. Find short in wiring circuit and correct.

C. EL-165-2 solenoid coil is burnt out or coil is not connected to solenoid plunger shaft. Reinstall or replace coil as necessary.

3. Volume of water is insufficient to adequately siphon fixture.

A. Control stop is not open wide enough. Adjust control stop for desired water delivery.

B. Low consumption unit is installed on water saver or conventional fixture. Replace diaphragm component parts of valve with kit that corresponds to appropriate flush volume of fixture.

C. Inadequate water volume or pressure available from supply. Increase pressure or supply (flow rate) to the valve. Consult factory for assistance.

4. Length of flush is too long (long flushing) or valve fails to shut off.

A. Water saver valve is installed on low consumption fixture. Replace diaphragm component parts of valve with kit that corresponds to appropriate flush volume of fixture.

B. Relief valve in diaphragm is not seated properly or bypass hole in diaphragm is clogged. Disassemble inside diaphragm component parts and wash parts thoroughly. Replace worn parts if necessary.

5. Water splashes from fixture.

A. Supply flow rate is more than necessary. Adjust control stop to meet flow rate required for proper cleansing of the fixture.

B. Closet valve is installed on urinal fixture. Replace closet diaphragm component parts with proper urinal kit (inside diaphragm assembly or inside parts kit).

If further assistance is required, please contact Sloan Technical Support at:
1-888-SLOAN-14 (1-888-756-2614)
or visit us online at:
www.sloanvalve.com

!!! IMPORTANT !!!

PROTECT THE FINISH OF THE FLUSHOMETER – DO NOT USE TOOTHED TOOLS TO INSTALL OR SERVICE THESE VALVES. USE A SLOAN A-50 Super-Wrench™, Sloan A-109 Plier Wrench OR SMOOTH JAWED SPUD WRENCH TO SECURE ALL COUPLINGS. ALSO SEE "CARE AND CLEANING" SECTION.

!!! IMPORTANT !!!

THIS PRODUCT CONTAINS MECHANICAL AND/OR ELECTRICAL COMPONENTS THAT ARE SUBJECT TO NORMAL WEAR. THESE COMPONENTS SHOULD BE CHECKED ON A REGULAR BASIS AND REPLACED AS NEEDED TO MAINTAIN THE VALVE'S PERFORMANCE.

!!! IMPORTANT !!!

NEVER OPEN CONTROL STOP TO WHERE THE FLOW FROM THE VALVE EXCEEDS THE FLOW CAPABILITY OF THE FIXTURE. IN THE EVENT OF A VALVE FAILURE, THE FIXTURE MUST BE ABLE TO ACCOMMODATE A CONTINUOUS FLOW FROM THE VALVE.

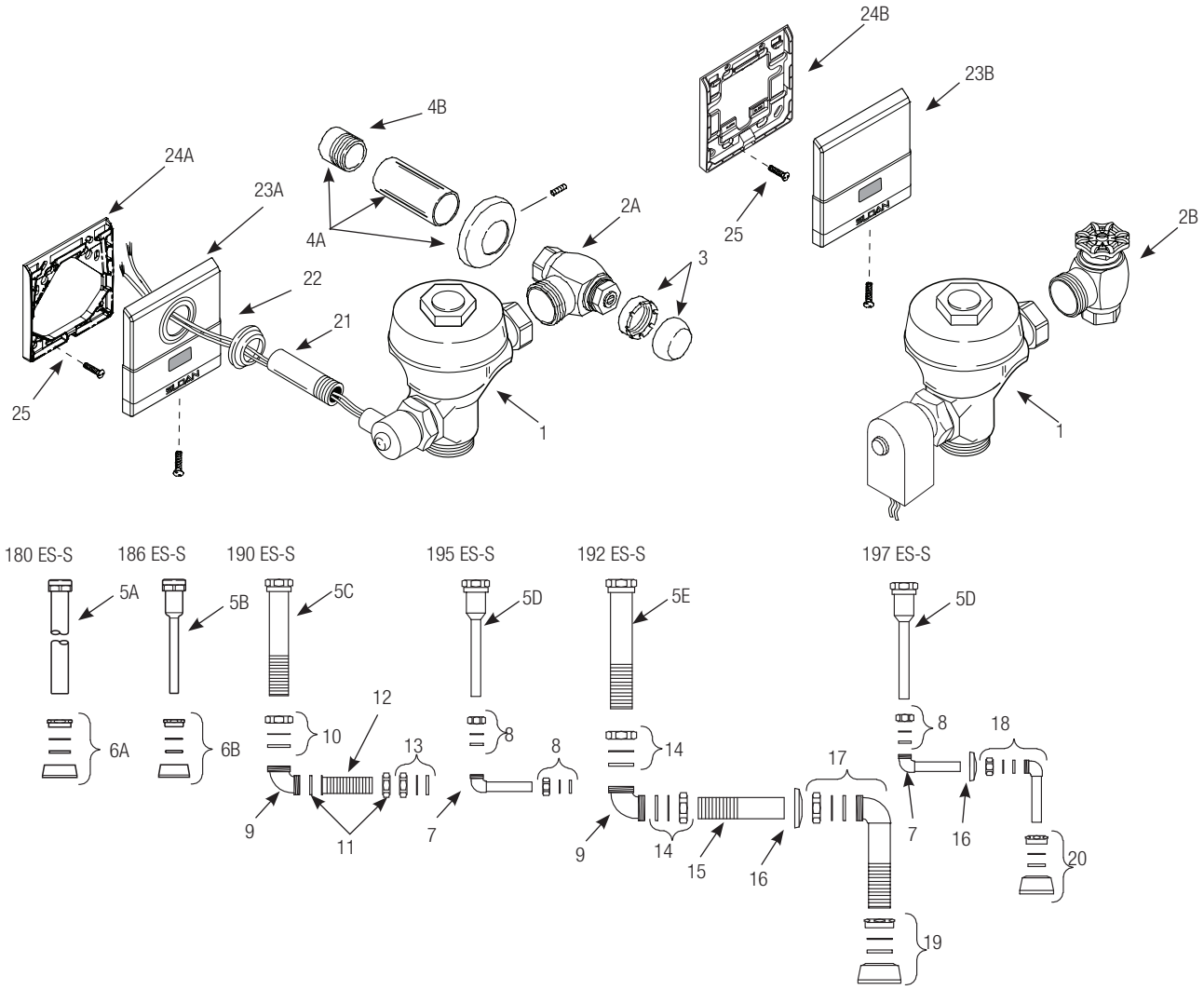
!!! IMPORTANT !!!

DO NOT INSTALL THE CAP ONTO THE SLEEVE UNLESS THE SLEEVE HAS BEEN THREADED ONTO THE CONTROL STOP BONNET. IF ASSEMBLED WHEN OFF OF THE CONTROL STOP, THE SLEEVE WILL NOT COME APART FROM THE CAP.

!!! IMPORTANT !!!

LAWS AND REGULATIONS PROHIBIT THE USE OF HIGHER FLUSHING VOLUMES THAN LISTED ON FIXTURE OR FLUSHOMETER.

URINAL PARTS LIST



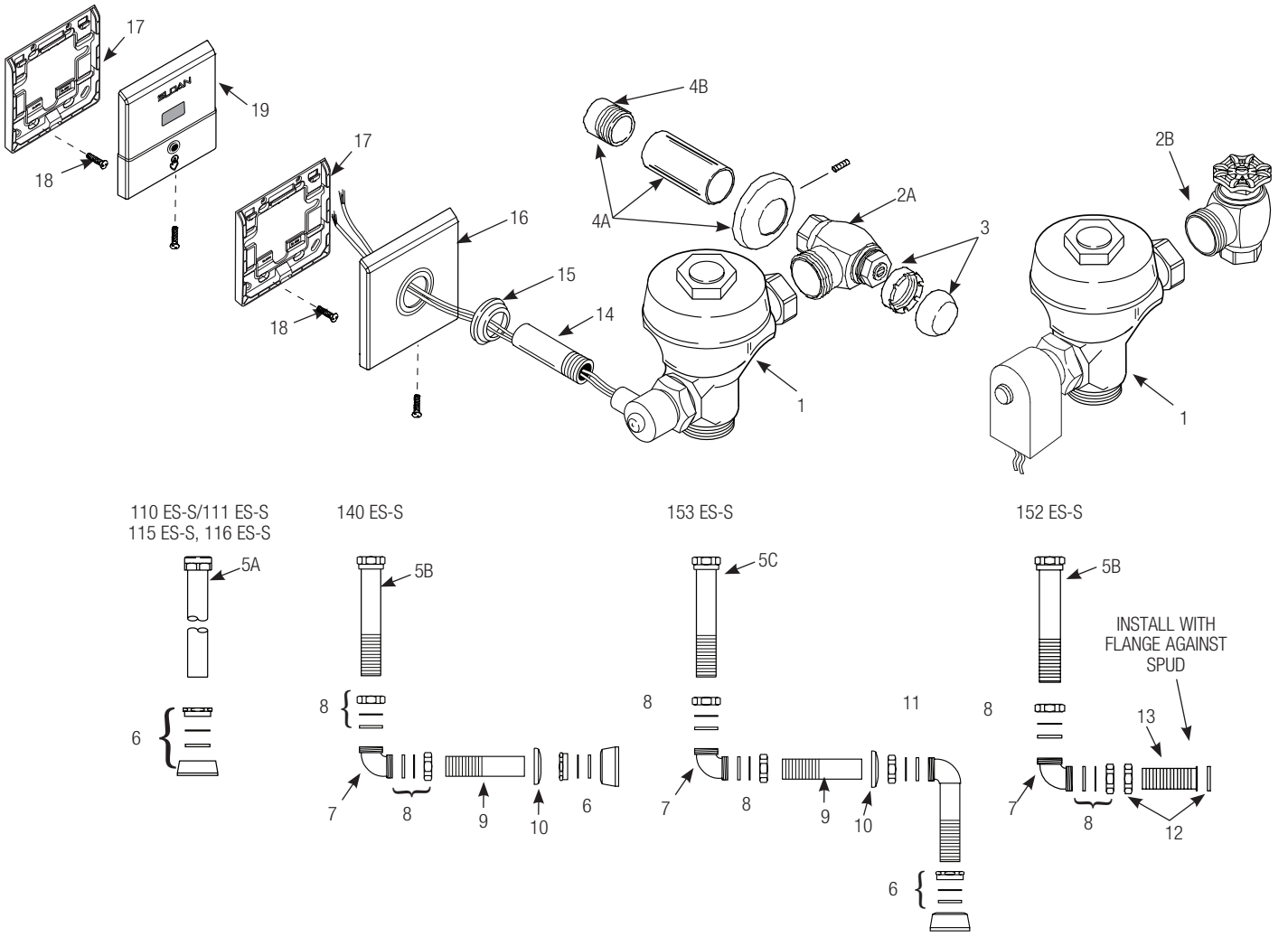
Item No.	Part No.	Description
1	‡	Solenoid Operated Valve Assembly
2A	H-700-A ‡	1" (25 mm) Exposed Bak-Chek® Control Stop
	H-700-A ‡	¾" (20 mm) Exposed Bak-Chek® Control Stop
2B	H-730-A ‡	1" (25 mm) Conc. Wheel Handle Bak-Chek® Control Stop
	H-730-A ‡	¾" (20 mm) Conc. Wheel Handle Bak-Chek® Control Stop
3	H-1010-A	Vandal Resistant Stop Cap
4A	H-633-AA	1" (25 mm) Sweat Solder Kit (Exposed Models)
	H-636-AA	¾" (19 mm) Sweat Solder Kit (Exposed Models)
4B	H-532	Adapter, 1" NPT to 1" Tube
	H-535	Adapter, ¾" NPT to ¾" Tube
5A	V-600-AA	1¼" (32 mm) x 9" (229 mm) Vacuum Breaker Assembly CP (Model 180 ES-S)
5B	V-600-AA	¾" (20 mm) x 9" (229 mm) Vacuum Breaker Assembly CP (Model 186 ES-S)
5C	V-500-AA	1½" (38 mm) x 11½" (292 mm) Vacuum Breaker Assembly RB (Model 190 ES-S)
5D	V-500-AA	¾" (20 mm) x 10½" (267 mm) Vacuum Breaker Assembly RB (Models 195 ES-S and 197 ES-S)
5E	V-500-AA	1½" (38 mm) x 7½" (191 mm) Vacuum Breaker Assembly RB (Model 192 ES-S)
6A	F-5-A	1¼" (32 mm) Spud Coupling Assembly (Model 180 ES-S)
6B	F-5-A	¾" (20 mm) Spud Coupling Assembly (Model 186 ES-S)
7	F-15-A	ELL with ¾" (20 mm) Tail (Models 195 ES-S and 197 ES-S)
8	F-2-AW	¾" (20 mm) Slip Joint Coupling (Models 195/197 ES-S)

Item No.	Part No.	Description
9	F-21	Double Slip Elbow (Models 190 ES-S and 192 ES-S)
10	F-2A	1½" (38 mm) Slip Joint Coupling (Model 190 ES-S)
11	F-2A	Coupling with S-21 Gasket
12	F-110	1¼" (32 mm) O.D. Outlet
13	F-2-A-U	1¼" (32 mm) Slip Joint Coupling
14	F-2-AA	1½" (38 mm) Slip Joint Coupling (Set of Two) (Model 192 ES-S)
15	F-102	1½" Outlet Tube CP
16	F-7	Flange
17	F-25-A	1¼" Elbow Assembly
18	F-15-A	ELL with ¾" Tail CP (Model 197 ES-S)
19	F-5-A	1¼" Spud Coupling Assembly CP
20	F-5-A	¾" Spud Coupling Assembly CP
21	F-15	Tail Assembly
22	EL-431-A	Flange Assembly
23A	EL-640-A	Cover Plate with Sensor & Mounting Hardware Assembled (Exposed Models) (includes EL-549 mounting plate)
23B	EL-645-A	CP Cover Plate with Sensor Assembled (Concealed Models)
24A	EL-549	Mounting Plate (Exposed Models)
24B	EL-592	Mounting Plate (Concealed Models)
25	EL-177	Screws (requires four (4) screws per mounting plate)
	EL-1500	Urinal Sensor Replacement

‡ Part number varies with valve model variation; consult factory.

INSTALLATION TEMPLATE: For Models 180/186 ES-S: Code # 0816156

WATER CLOSET PARTS LIST



Item No.	Part No.	Description
1	‡	Solenoid Operated Valve Assembly
2A	H-700-A ‡	1" (25 mm) Exposed Bak-Chek® Control Stop
2B	H-730-A ‡	1" (25 mm) Conc. Wheel Handle Bak-Chek® Control Stop
3	H-1010-A	Vandal Resistant Stop Cap
4A	H-633-AA	1" (25 mm) Sweat Solder Kit (Exposed Models)
4B	H-532	Adapter, 1" NPT to 1" Tube
5A	V-600-AA	1½" (38 mm) x 9" (229 mm) Vacuum Breaker Assembly (Model 110/111 ES-S) 1½" (38 mm) x 21½" (546 mm) Vacuum Breaker Assembly (Model 115 ES-S) 1½" (38 mm) x 24½" (622 mm) Vacuum Breaker Assembly (Model 116 ES-S)
5B	V-500-AA	1½" (38 mm) x 11½" (292 mm) Vacuum Breaker Assembly RB (Models 140 ES-S & 152 ES-S)
5C	V-500-AA	1½" (38 mm) x 7½" (191 mm) Vacuum Breaker Assembly RB (Model 153 ES-S)
6	F-5-A	1½" (38 mm) Spud Coupling Assembly CP
7	F-21	1½" (38 mm) Double Slip Elbow

Item No.	Part No.	Description
8	F-2-AA	1½" (38 mm) Slip Joint Coupling (Set of Two)
9	F-102	1½" (38 mm) Outlet Tube CP
10	F-7	Flange
11	F-25-A	1½" (38 mm) Elbow Assembly
12	F-2-A	Coupling with S-21 Gasket
13	F-100	1½" (38 mm) Outlet Tube RB
14	F-15	Tail Assembly
15	EL-431-A	Flange Assembly
16	EL-625-A	CP Cover Plate with Mounting Hardware Assembled (Closet only) (includes EL-543 mounting plate)
17	EL-592	Mounting Plate (Closet only)
18	EL-177	Screws (requires four screws per mounting bracket)
19	EL-595-A	CP Cover Plate with Sensor and Override Switch Assembled (Closet only)
	EL-1500-L	Closet Sensor Replacement Kit (Closet only)

‡ Part number varies with valve model variation; consult factory.

INSTALLATION TEMPLATE: For Models 110/111 ES-S: Code # 0816157

Manufactured by Sloan Valve Company under one or more of the following patents: 5,558,120; 5,564,460; D399,932; 5,649,686; 5,865,420; 5,887,848; 5,967,182; D626,630; 6,616,119

The information contained in this document is subject to change without notice.

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Code No. 0816164 – Rev. 8 (02/17)

XLERATOR® HAND DRYER

MODELS: **XL -** **BW** **W** **GR** **C** **SB** **SI** **SP** OPTIONS: **-H** (HEPA Filter) **-1.1N** (Noise Reduction Nozzle) **-VOLTAGE** (See Chart)

XL-BW
White Thermoset Resin (BMC)

XL-W
White Epoxy Painted

XL-GR
Graphite Textured Painted

XL-SP[4]
Custom Special Paint

XL-SI[5]
Custom Special Image

XL-C
Chrome Plated

XL-SB
Brushed Stainless Steel

TESTED TO PCR GUIDELINES

UL Environment published the first global Product Category Rules (PCR) for Hand Dryers. The PCR created evaluation methods through industry consensus that compare products' environmental impact and performance. Third-party testing results then allow for the creation of certified Environmental Product Declarations (EPDs).

CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION

An EPD is a comprehensive, internationally-harmonized report documenting a product's environmental impact over its lifecycle. They enable specifiers and buyers to make a true apples-to-apples comparison of products and make more informed product selections. Excel Dryer received the industry's first certified EPDs.

LIMITED WARRANTY

The dryer shall be guaranteed to be free from defects for a period of **seven (7) years**. Warranty shall include labor performed at factory as well as the repair or exchange of defective parts, at manufacturer's option.

QUANTITY RECOMMENDATIONS

One dryer for every two washbasins is sufficient for most applications. If restroom traffic is unusually heavy, we suggest one dryer per washbasin in small installations and two dryers for every three washbasins in larger installations. When a 54" washfountain is used, we suggest four to five dryers.

PERFORMANCE

TESTED TO PCR GUIDELINES

DRY TIME: 8 SECONDS[1]

ENERGY PER USE: 3.7 Wh[1]

DATA BASED ON ALL XL .8 NOZZLE DRYERS INCLUDING HEPA MODELS

SOUND: 62 - 75 dB(a) Average

VELOCITY: 12,000 - 20,000 LFM @ Air Outlet

FLOW RATE: 39 - 64 CFM

MOTOR RPM: Up to 24,000 RPM

HEAT RANGE: OFF to HIGH: 90°F - 145°F Average @ Air Outlet

WATTAGE: ~1,450 Watts (Heat On) ~510 Watts (Heat Off)

IP RATING: IP23B

CONSTRUCTION

A. All covers will be fastened to a base plate by two chrome plated tamper-proof bolts.
Cover shall be one of the following:
Die-cast zinc alloy – One-piece, heavy-duty, rib-reinforced, lightweight, unbreakable, rustproof and all exposed surfaces shall be bright chrome plated or finished with chip-proof, electrostatically applied epoxy paint.
Bulk Molding Compound (BMC) – White reinforced thermoset resin.
Stainless Steel – with a brushed finish.
Special Image – Digital image applied to die-cast or stainless steel covers using patented Kolorfusion Sublimation Decoration process.

B. Base plate shall be equipped with (3) 7/8" (22 mm) diameter holes, the bottom one is suitable for use with surface conduit.

C. All internal parts shall be coated according to Underwriters' Laboratories, Inc. requirements.

D. Entire mechanism shall be internally grounded.

E. Options
HEPA Filtration System: Removes 99.999% of viruses[2] and 99.97% of potentially present bacteria[3] at 0.3 microns from the airstream.
1.1" Noise Reduction Nozzle: Reduces the sound level by 9 decibels by significantly decreasing air deflection noise while only increasing dry time by approximately
3 seconds.

F. Accessories (optional)
Antimicrobial Wall Guards: 89W (Microban® White), 89B (Microban Black), 89S (Brushed Stainless Steel)
XChanger Paper Towel Dispenser Retrofit Kit: 40575, 40576 (ADA Height)
ADA-Compliant Recess Kit: 40502

MECHANISM

A. **New 50% longer life motor** shall be a thermally protected, series commutated, through-flow discharge vacuum motor/blower (5/8 hp / 24,000 rpm) which provides air velocity of up to 20,000 LFM (linear feet per minute). Includes a washable metal mesh filter for more reliable performance.

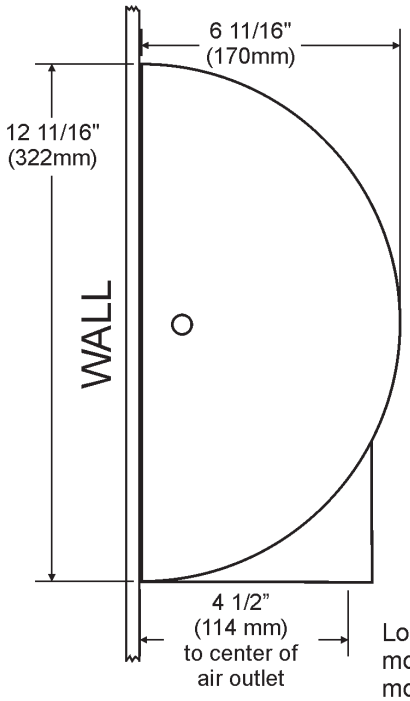
B. Heating element (970 W) is constructed of Nichrome wire and mounted inside the blower housing, thereby being vandal resistant. It shall be protected by an automatic resetting thermostat, which shall open whenever air flow is cut off and shall close when flow of air is resumed. It shall produce an average air temperature at the outlet of up to 145°F (63°C) at a 72°F (22°C) ambient room temperature.

C. Control assembly is activated by an infrared optical sensor located next to the air outlet. The dryer shall operate as long as hands are under the air outlet. Control includes a speed and sound control mechanism, adjustable heat control with High, Medium, Low and Off settings and a filter sensor which is activated should the filter become clogged. There is a 35-second lockout feature if hands are not removed. Sensor equipped with externally visible red LED that flashes error codes to assist in troubleshooting. t

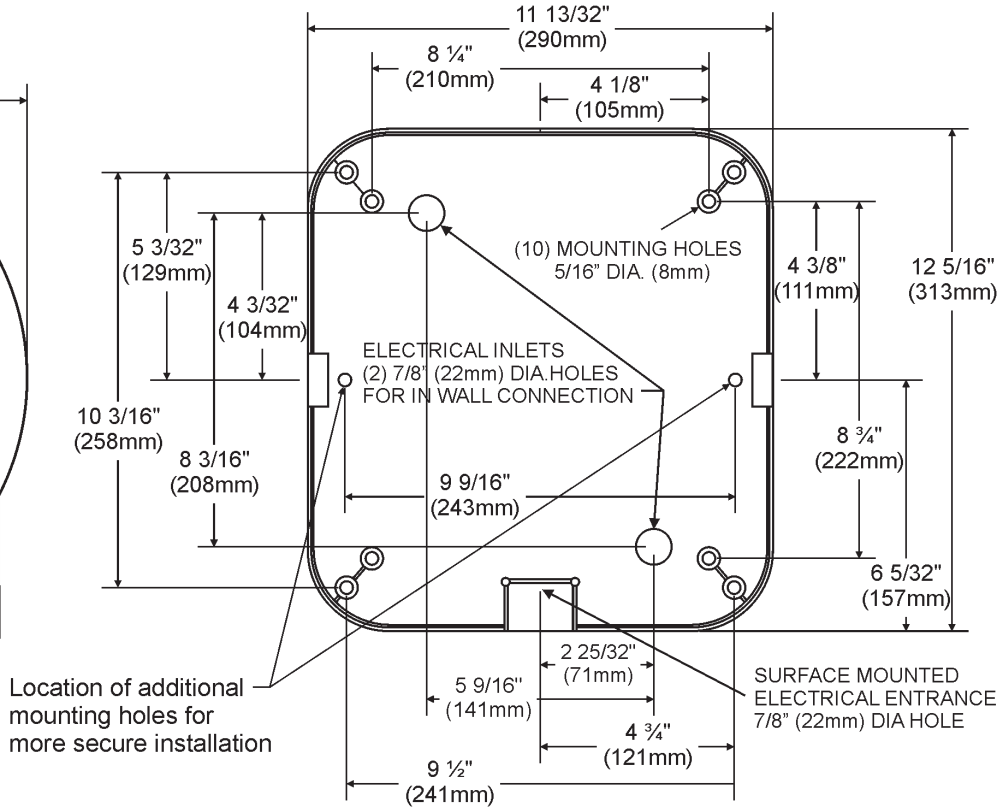
XLERATOR® HAND DRYER

MODELS: **XL -** **BW** **W** **GR** **C** **SB** **SI** **SP** OPTIONS: **-H** (HEPA Filter) **-1.1N** (Noise Reduction Nozzle) **-VOLTAGE** (See Chart)

SIDE VIEW



FRONT VIEW FACING WALL



DIMENSIONS

Width 11 3/4" (298 mm) **Height** 12 11/16" (322 mm) **Depth** 6 11/16" (170 mm)

ACTIVATION

Automatic Sensor Operated

MOUNTING

Surface-Mounted

WEIGHT

XL-BW: 15 lbs. (6.8 kgs.) **XL-SB**: 16 lbs. (7.26 kgs.) **XL-W, GR, C, SI, SP**: 17 lbs. (7.71 kgs.)

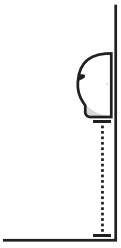
ELECTRICAL

VOLTS	AMPS	WATTS	AMPS (NO HEAT)	WATTS (NO HEAT)	HERTZ	LISTING
110-120V	11.3-12.2A	1,213-1,450W	4.3-4.5A	442-513W	50/60 Hz	cULus
208-240V	5.6-6.2A	1,135-1,450W	2.0-2.2A	416-495W	50/60 Hz	cULus
208-277V	5.6-6.2A	1,135-1,450W	2.0-2.2A	416-495W	50/60 Hz	UL
230V	6.1A	1,400W	2.1A	500W	50-60 Hz	CE

SUGGESTED MOUNTING HEIGHTS

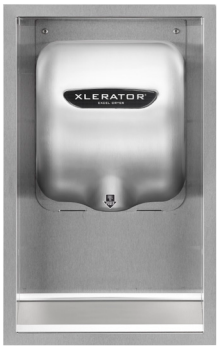
from floor to bottom of dryer:

Men	45"	(114 cm)
Women	43"	(109 cm)
Teenagers	41"	(104 cm)
Small Children	35"	(89 cm)
Accessible	37"	(94 cm)

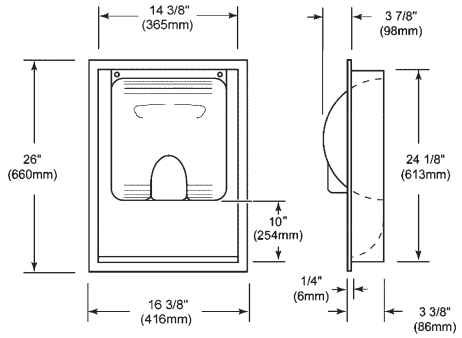


CERTIFICATIONS

OPTIONAL ADA-COMPLIANT RECESS KIT



Part # 40502



DIMENSIONS

Width 16 3/8" (416 mm) **Height** 26" (660 mm) **Depth** 3 3/8" (86 mm)

Bottom of recessed wall box should be 10" (254 mm) below suggested mounting height for dryer.

[1]Dry time and energy use testing performed by SGS International on standard XLERATOR Hand Dryer with 0.8" nozzle to 0.25g or less of residual moisture, pursuant to the UL Environment Global Product Category Rules (PCR) for Hand Dryers. [2]Based on testing performed by LMS Technologies, 2020. [3]LMS Technologies, 2014. [4]Special Paint powder-coated covers are available in many colors and textures. [5]Exclusive digital image technology allows for the addition of company, school or team logos with any color, design or a 'green message'.

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ELKAY®
SPECIFICATIONS

Elkay ezH2O Vandal-Resistant Bottle Filling Station & Bi-Level Cooler Non-Filtered Refrigerated Stainless
Model VRCTL8WSK

PRODUCT SPECIFICATIONS

Elkay ezH2O® Vandal-Resistant Bottle Filling Station, & Bi-Level Cooler, Non-Filtered Refrigerated Stainless. Chilling Capacity of 8.0 GPH (gallons per hour) of 50° F drinking water, based on 80° F inlet water and 90° F ambient, per ASHRAE 18 testing. Features shall include Green Ticker™, Laminar Flow, Real Drain, Vandal Resistant. Furnished with Vandal Resistant bubbler. Electronic Bottle Filler Button with Mechanical Front Bubbler Button activation. Product shall be Wall Mount (On Wall), for Indoor + Outdoor applications, serving 2 station(s). Unit shall be certified to UL 399 and CAN/CSA C22.2 No. 120. Unit shall be lead-free design which is certified to NSF/ANSI 61 & 372 (lead free) and meets Federal and State low-lead requirements.

Special Features:	Green Ticker™, Laminar Flow, Real Drain, Vandal Resistant
Finish:	Stainless Steel
Power:	115V/60Hz
Bubbler Style:	Vandal Resistant
Activation by:	Electronic Bottle Filler Button with Mechanical Front Bubbler Button
Mounting Type:	Wall Mount (On Wall)
Chilling Capacity*:	8.0 GPH
Full Load Amps	1
Rated Watts:	370
Dimensions (L x W x H):	36-1/8" x 18-5/8" x 38-13/16"
Approx. Shipping Weight:	118 lbs.
Installation Location:	Indoor + Outdoor
No. of Stations Served:	2
*Based on 80° F inlet water & 90° F ambient air temp for 50° F chilled drinking water.	
**When used in non-temperature controlled environments, unit(s) must be adequately winterized and/or protected from extreme heat to prevent damage where climates dictate.	

- Mechanically-Activated bubbler continues to supply water in event of service disruptions.
- Green Ticker: Informs user of number of 20 oz. plastic water bottles saved from waste.
- Laminar flow provides clean fill with minimal splash.
- Real Drain System eliminates standing water.

COOLING SYSTEM

- Compressor: Hermetically-sealed, reciprocating type, single phase. Sealed-in lifetime lubrication.
- Condenser: Fan cooled, copper tube with aluminum fins. Fan motor is permanently lubricated.
- Cooling Unit: Combination tube-tank type. Continuous copper tubing with is fully insulated with EPS foam that meets UL requirements for self-extinguishing material.
- Refrigerant Control: Refrigerant R-134a is controlled by

PART:_____QTY: _____

PROJECT:_____

CONTACT:_____

DATE:_____

NOTES:_____

APPROVAL:_____

Included with Product: **Water Cooler (VRCTL8WSC), Bottle Filler (VRCWS)**

▼ Ships in multiple boxes.

AMERICAN PRIDE. A LIFETIME TRADITION.
Like your family, the Elkay family has values and traditions that endure. For almost a century, Elkay has been a family-owned and operated company, providing thousands of jobs that support our families and communities.

BUILT IN USA OF DOMESTIC AND FOREIGN PARTS

PRODUCT COMPLIANCE

ADA & ICC A117.1
ASME A112.19.3/CSA B45.4
Buy American Act
CAN/CSA C22.2 No. 120
GreenSpec®
NSF/ANSI 61 & 372 (lead free)
UL 399

Complies with ADA & ICC A117.1 accessibility requirements when installed according to the requirements outlined in these standards. Installation may require additional components and/or construction features to be fully compliant. Consult the local Authority Having Jurisdiction if necessary.

Installation Instructions (PDF)

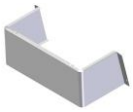
5 Year Limited Warranty on the refrigeration system of the unit. Electrical components and water system are warranted for 12 months from date of installation. **Warranty pertains to drinking water applications only. Non-drinking water applications are not covered under warranty.**

Warranty (PDF)

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice. Please visit elkay.com for the most current version of Elkay product specification sheets. This specification describes an Elkay product with design, quality, and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

accurately calibrated capillary tube.

- Temperature Control: Easily accessible enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements.

Optional Accessories		
EWF3000	Elkay WaterSentry Plus Filter System Kit (Bottle Fillers) Spec Sheet (PDF)	
98324C	Accessory - Cane Apron for HAC HVR EMABF & VRC Models (Stainless) Spec Sheet (PDF)	
36292C	Accessory - Power Block for Multistation Bottle Filling Stations Spec Sheet (PDF)	

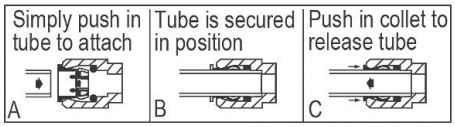
IMPORTANT!
INSTALLER PLEASE NOTE :

This water cooler has been designed and built to provide water to the user which has not been altered by materials in the cooler waterways. The grounding of electrical equipment such as telephone, computer, etc. to water lines is a common procedure. The grounding may be in the building but may also occur away from the building. This grounding can cause electrical feedback into a water cooler creating an electrolysis which creates a metallic taste or causes an increase in the metal content of the water. This condition is avoidable by installing the cooler using the proper materials as shown below.

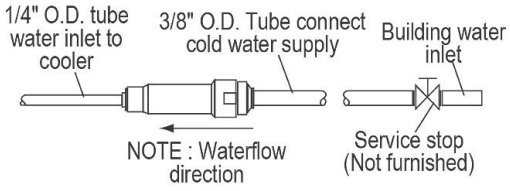
NOTICE

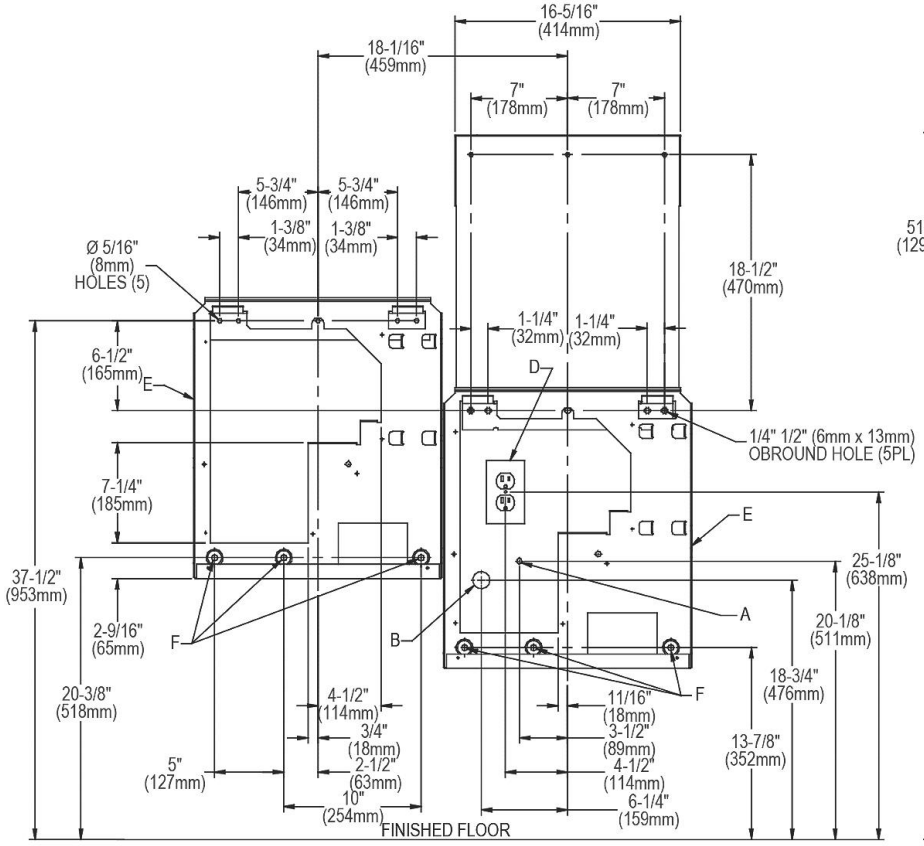
This water cooler must be connected to the water supply using a dielectric coupling. The cooler is furnished with a non-metallic strainer which meets this requirement. The drain trap which is provided by the installer should also be plastic to completely isolate the cooler from the building plumbing system.
Bottle filler unit on bracket attached to wall by 6 holes (as shown). Water and electrical will connect through pre-punched hole in basin.
These products are designed to operate on 20 psi to 105 psi supply line pressure. Simultaneous operation of both bubblers on a bi-level unit may not be possible depending on water supply pressure. If simultaneous operation is desired, please ensure a minimum of 50 psi supply.

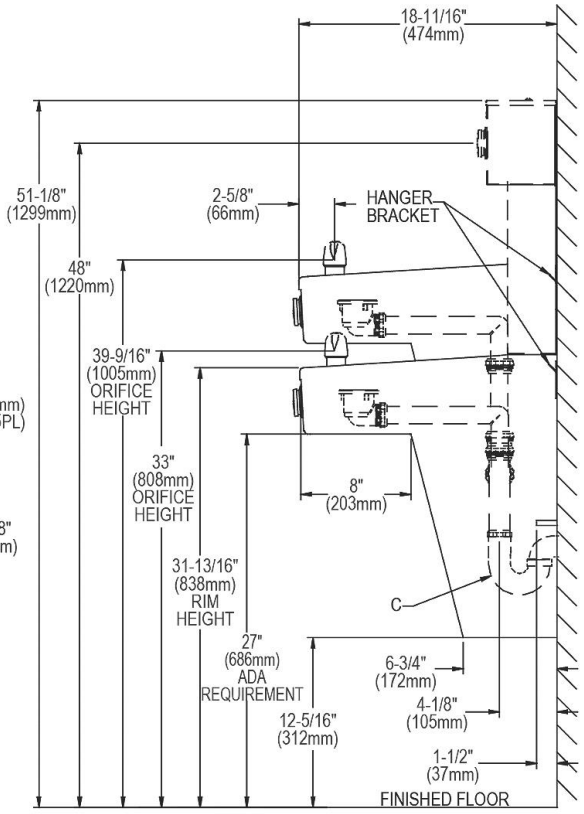
OPERATION OF QUICK CONNECT FITTINGS



Pushing tube in before pulling it out helps to release tube







REDUCE HEIGHT BY 3" FOR INSTALLATION OF CHILDREN'S ADA COOLER

LEGEND:
A = Recommended Water Supply location. Shut-off Valve (not furnished) to accept 3/8" O.D. unplated copper tube. Up to 3" (76mm) maximum out from wall.
B = Recommended Waste Outlet location. To accommodate 1-1/2" nominal drain. Drain stub 2" (51mm) out from wall.
C = 1-1/2" Trap (not furnished).
D = Electrical Supply (3) Wire Recessed Box Duplex Outlet.
E = Insure proper ventilation by maintaining 6" (152mm) minimum clearance from cabinet louvers to wall.
F = 7/16" (11mm) Bolt Holes for fastening to wall.
Note : New Installations Must Use Ground Fault Circuit Interrupter (GFCI). It is highly recommended that the circuit be dedicated and the load protection be sized for 20 amps.

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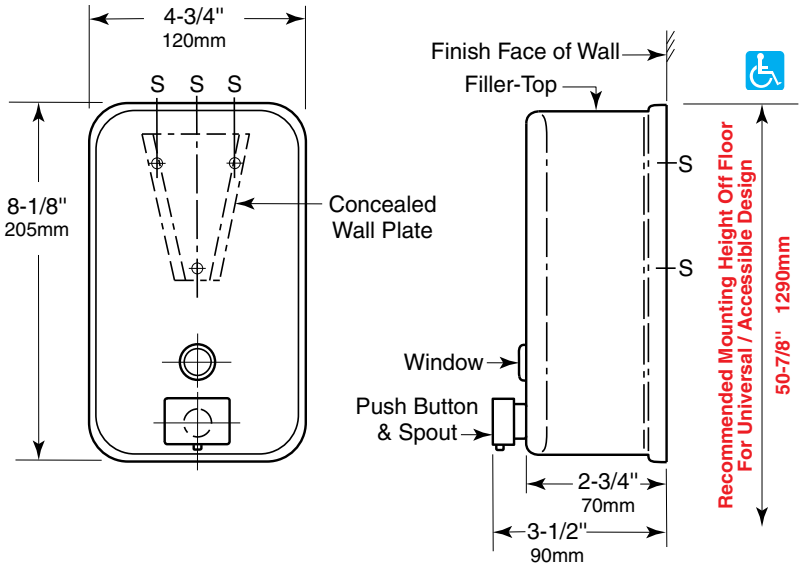
BOBRICK

Technical Data

ClassicSeries® SURFACE-MOUNTED SOAP DISPENSER

B-2111



MATERIALS:

Container — 18-8, Type-304, 22-gauge (0.8mm) stainless steel with satin-finish. Body is drawn, one-piece, seamless construction. Back plate has mounting bracket attached. Furnished with concealed wall plate. Equipped with a clear acrylic refill-indicator window and a locked, hinged stainless steel lid for top filling. Capacity: 40-fl oz (1.2-L).

Valve — Black molded plastic push button and spout. Soap head-holding mushroom valve. Stainless steel spring. U-packing seal and duckbill. Antibacterial-soap-resistant plastic cylinder.

OPERATION:

Corrosion-resistant valve dispenses commercially marketed all-purpose hand soaps. To prevent corrosion of the tank, use only chloride-free pH-neutral liquid soaps. Valve is operable with one hand, without tight grasping, pinching, or twisting of the wrist, and with less than 5 pounds of force (22.2 N) to comply with accessible design guidelines (including ADAAG in the U.S.A.). Window indicates when refill is required. The locked, hinged lid opens for top filling only with special key provided. Concealed, vandal-resistant mounting.

INSTALLATION:

Secure wall plate to the wall with three sheet-metal screws, furnished by manufacturer, at points indicated by an *S*. Slide mounting bracket of container down onto wall plate and secure unit with furnished locking-screw. For plaster or dry wall construction, provide concealed backing to comply with local building codes and secure with sheet-metal screws furnished. For other wall surfaces, provide fiber plugs or expansion shields for use with sheet-metal screws furnished, or provide 1/8" (3mm) toggle bolts or expansion bolts.

Note: Surface-mount the dispenser plumb and true with valve 6" (150mm) to right or left of lavatory center. Provide 4" (100mm) minimum clearance from the lid to the underside of any horizontal projection. Push buttons should be located 44" (1120mm) maximum above the finish floor.

SPECIFICATION:

Surface-mounted soap dispenser shall be Type-304 stainless steel with satin-finish. Corrosion-resistant valve shall dispense commercially marketed all-purpose hand soaps, non-iodine based soaps and do not use alcohol based sanitisers. To prevent corrosion of the tank, use only chloride-free pH-neutral liquid soaps. Valve shall be operable with one hand and with less than 5 pounds of force (22.2 N) to comply with accessible design guidelines (including ADAAG in the U.S.A.). Container shall be equipped with a clear acrylic refill-indicator window; a locked, hinged stainless steel lid for top filling; and shall have a capacity of 40-fl oz (1.2-L). Unit shall have concealed, vandal-resistant mounting.

Surface-Mounted Soap Dispenser shall be Model B-2111 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

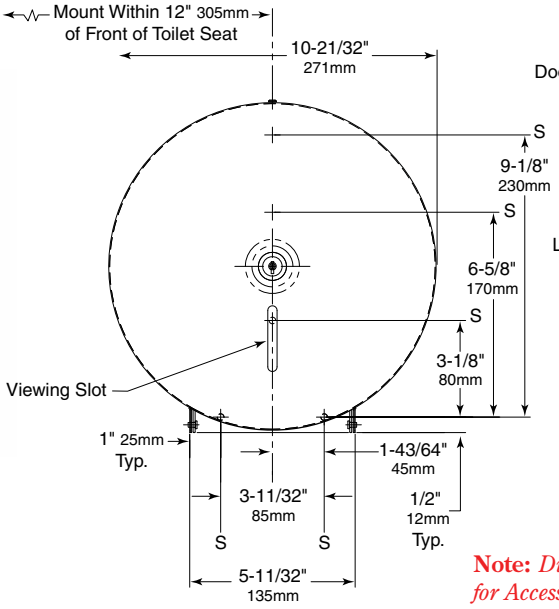
Revised 1/22/18 Printed in U.S.A.

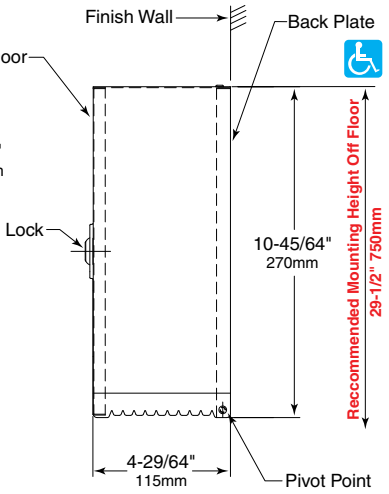
BOBRICK

Technical Data

SURFACE-MOUNTED SINGLE JUMBO-ROLL TOILET TISSUE DISPENSER

B-2890





Note: *Dispenser is ICC A117.1 - 2009 Standard for Accessibility compliant. Unit can be located below grab bar, in area 24" minimum to 42" maximum from rear wall, with outlet 18" minimum above floor.*

MATERIAL:

Mounting Plate — 16-gauge (1.6mm) stainless steel.

Door — Type-304, 22-gauge (0.8mm) stainless steel with satin-finish. Slot reveals toilet tissue supply inside cabinet. Equipped with a lock keyed like other Bobrick Washroom Equipment accessories.

Spindle — Removable rubber-o-rings converts to smaller spindle. Fixed inner spindle, 20 gauge (0.9mm) stainless steel.

OPERATION:

Door unlocks with key provided and swings down for loading dispenser. Spindle adapter accommodates one toilet tissue roll up to 10" (255mm) diameter with a 1-5/8" (40mm) diameter core roll; convertible for 3" (75mm) diameter core rolls. Rubber o-rings (2) (furnished by manufacturer) may be added to the steel inner spindle to accommodate a 2-1/8" (55mm) diameter core roll. Wide viewing slot in door reveals the amount of toilet tissue on roll. Unit is designed for quick reloading.

INSTALLATION:

Mount unit on wall or toilet partition with sheet-metal screws at points indicated by an *S*. Rear edge of unit should be 20" (510mm) from back wall. This locates toilet tissue within 12" (305mm) of front of standard toilet that projects 30" (305mm) from back wall.

For plaster or dry wall construction, provide concealed backing to comply with local building codes, then secure with sheet-metal screws (not furnished). For other wall surfaces, provide fiber plugs or expansion shields for use with sheet-metal screws (not furnished), or provide 6mm (1/4") toggle bolts or expansion bolts.

For partitions with particle-board or other solid core, secure with sheet-metal screws (not furnished), or provide through-bolts, nuts, and washers. For hollow-core metal partitions, provide solid backing into which the sheet-metal screws can be secured. If two units are installed back-to-back, then provide threaded sleeves and machine screws for the full thickness of partition.

SPECIFICATION:

Single jumbo-roll toilet tissue dispenser door shall be 22-gauge (0.8mm) stainless steel with satin-finish. Door shall be equipped with a lock keyed like other Bobrick washroom accessories. Door shall have a slot to reveal toilet tissue supply inside cabinet. Spindle shall accommodate one toilet tissue roll up to 10" (255mm) diameter with a 1-5/8" (40mm) diameter core roll convertable for 3" (75mm) diameter core rolls or 2-1/8" (55mm) diameter core roll by adding rubber o-rings (2) furnished.

Single Jumbo-Roll Toilet Tissue Dispenser shall be Model B-2890 of Bobrick Washroom Equipment, Inc., Clifton Park, New York; Jackson, Tennessee; Los Angeles, California; Bobrick Washroom Equipment Company, Scarborough, Ontario; Bobrick Washroom Equipment Pty. Ltd., Australia; and Bobrick Washroom Equipment Limited, United Kingdom.

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