Quality People. Building Solutions.

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Date: 6/18/2024
Return Request: ASAP
Project: Hugg and Hall Storage Addition
Supplier: Falk
Manufacturer: Various
Submittal: Plumbing Basics "Fixtures"
Submittal Number:
Spec Section: 22 00 00
Drawing # and Installation Location: Plumbing Drawings

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Comments:

CSUSA PROJECT NO.
24-1051
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HUGG AND HALL
CARTHOM PROPERTIES

PLUMBING
OPERATION & MAINTENANCE

CIRC PUMP

Bell & Gossett
a xylem brand

INSTRUCTION MANUAL
P58671G

NRF/NBF/SSF Circulator

INSTALLER: PLEASE LEAVE THIS MANUAL FOR THE OWNER'S USE.

NOTE: Bell & Gossett recommends Bronze or Stainless Steel Booster Pumps be used for pumping potable water.

This pump is for indoor use only.

SAFETY INSTRUCTIONS

This safety alert symbol will be used in this manual and on the pump Safety Instruction decal to draw attention to safety related instructions. When used, the safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.

Your NRF/NBF/SSF Booster Pump should have the warning/caution label and nonsubmersible warning label displayed to the right (Fig. 1) on the pump conduit box. If this warning and caution label is missing or illegible, contact your local B&G Representative for a replacement.

⚠ WARNING

BEFORE INSTALLING, USING OR SERVICING THIS PRODUCT, READ THE INSTRUCTIONS. TO REDUCE RISK OF ELECTRICAL SHOCK SEE INSTRUCTIONS FOR PROPER INSTALLATION.

⚠ CAUTION

FOR SUPPLY CONNECTIONS USE WIRE SUITABLE FOR AT LEAST 90°C. USE COPPER CONDUCTORS ONLY. EMPLOYER DES FILS D'ALIMENTATION ADEQUATS POUR 90°C. FOR INDOOR USE ONLY. EMPLOYER UNIQUEMENT A L'INTERIEUR.

⚠ WARNING

RISK OF ELECTRIC SHOCK; THIS PUMP HAS NOT BEEN INVESTIGATED FOR USE IN SWIMMING POOL AND MARINE AREAS. -NONSUBMERSIBLE PUMP-

P86313

FIG. 1

DESCRIPTION

The Model NRF/NBF/SSF Circulator Pump features system liquid lubricated bearings, non-overloading permanent split capacitor motor with impedance protection and quiet operation.

PUMP APPLICATION

The Model NRF/NBF/SSF Booster Pump may be used for water circulating applications in hydronic and solar systems. This pump is nonsubmersible, for indoor use only. It has not been investigated for use in swimming pool and marine areas.

OPERATIONAL LIMITS

These pumps are designed to pump liquids compatible with their iron, bronze or stainless steel body constructions.

Maximum Operating Pressure: 150 PSI (10 bars)
Maximum Operating Temperature:
NRF-22 & NRF-9F/LW, 240°F (115° C)
NBF Pumps (except NBF-33), 230°F (110°C)
NRF-33 & NBF-33, 225°F (107°C)
SSF Pumps, 230°F (110°C)

Electrical Rating: 115V, 60Hz, 1Ø; 220V, 60Hz, 1Ø;
220V, 50Hz, 1Ø; 230V, 60Hz, 1Ø

If your NBF pump is equipped with a sweat connected pump body, the maximum operating pressure is limited to 150 PSI (10 bars) or a lower value determined by the type of solder used and pressure/temperature limitations listed below:

Do not exceed these values.
(Solder type limits per ASTM STD. B16.18-1978)

PUMP BODY	TYPE OF SOLDER	MAXIMUM LIMITATIONS	
		PRESSURE PSI	TEMPERATURE °F
SWEAT	95-5 TIN-ANTIMONY	300	200
		250	225
		200	250

WARNING:
Damage to the pump or failure of solder sealing joints may occur if these operational limits are exceeded. This can result in water leakage. Failure to follow this instruction could cause serious personal injury and/or property damage.

SAFETY REQUIREMENTS

MECHANICAL SAFETY

WARNING: EXCESSIVE SYSTEM PRESSURE HAZARD
The maximum working pressure of the pump is listed on the nameplate – DO NOT EXCEED THIS PRESSURE. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

WARNING: EXCESSIVE PRESSURE HAZARD VOLUMETRIC EXPANSION
The heating of water and other fluids causes volumetric expansion. The associated forces may cause failure of system components and the release of high temperature fluids. This can be prevented by installing properly sized and located compression tanks and pressure relief valves. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

THERMAL SAFETY

WARNING: EXTREME TEMPERATURE HAZARD
If the pump, motor or piping are operating at extremely high or low temperature, guarding or insulation is required. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

ELECTRICAL SAFETY

WARNING: ELECTRICAL SHOCK HAZARD
Electrical connections are to be made by a qualified electrician in accordance with all applicable codes, ordinances and good practices. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

WARNING: ELECTRICAL GROUNDING HAZARD
Adequate electrical grounding is required for the safe operation of B&G Pumps. The use of grounded metal conduit assures this requirement. If the means of connection to the supply – connection box (wiring compartment) is other than grounded metal conduit, ground the pump back to the service. Use a copper conductor at least the size of the circuit connectors supplying the pump. Connect the ground wire to the green grounding screw in the wiring compartment. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

WARNING: RISK OF ELECTRIC SHOCK
Do not install this pump in swimming pool or marine areas. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

REMOVAL OF PUMP FROM EXISTING SYSTEM FOR REPLACEMENT

WARNING: ELECTRICAL SHOCK HAZARD
Disconnect and lockout the power before servicing. Failure to follow these instructions could result in serious personal injury or death.

1. Close the valves on the suction and discharge sides of the pump. (If no valves have been installed, it may be necessary to drain the system.)

WARNING: HOT WATER HAZARD
Before draining the system, allow water to cool to at least 100°F, open the drain valve (take precautions against water damage) and leave the drain valve open until servicing is complete. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

WARNING: ELECTRICAL SHOCK HAZARD
Be certain the electrical power is not present at the motor leads before continuing. Failure to follow these instructions could result in serious personal injury or death

2. Loosen the conduit box cover screw and remove the cover.
3. Disconnect the electrical supply lines to the pump.

WARNING: HIGH PRESSURE HAZARD
Pressure may be present in the pump body. This pressure can be relieved by loosening the flange bolts and shifting the pump assembly slightly to allow the pressurized water to escape. Failure to follow these instructions could result in serious personal injury or death.

4. Remove the flange nuts and bolts or loosen the union ring nuts. Then remove the pump from the piping.

PUMP INSTALLATION

Locate the pump so there is sufficient room for inspection, maintenance and service. Bell & Gossett recommends the installation of service valves on the suction and discharge of all circulators to facilitate servicing or replacement of the circulator without draining the system.

CAUTION: The use of PTFE impregnated pipe compound and PTFE tape on pipe threads provides lubricity which can lead to overtightening and breakage. Do not overtighten. Failure to follow this instruction can result in moderate personal injury from hot water and/or property damage.

Install suction and discharge flanges or union connectors on the pipe ends. The use of PTFE tape sealer or a high quality thread sealant is recommended.

Be sure to minimize any pipe-strain on the pump. Support the suction and discharge piping by the use of pipe hangers near the pump. Line up the vertical and horizontal piping so that the bolt-holes in the pump flanges match the bolt-holes in the pipe flanges. If union connections are used, line up the pump threads with union tail pieces. DO NOT ATTEMPT TO SPRING THE SUCTION OR DISCHARGE LINES IN POSITION. THIS MAY RESULT IN UNWANTED STRESS IN THE PUMP BODY, FLANGE CONNECTIONS AND PIPING. The code for Pressure Piping (ANSI B31.1) lists many types of supports available for various applications.

Bell & Gossett flange/union gaskets must be installed between the NRF/NBF/SSF pump body flanges and the suction and discharge pipe flanges/union tail pieces. Use $^{7}/_{16}$" diameter x $1^{1}/_{2}$" long cap screw and matching nut to connect the pump to the flanges.

WARNING: HOT WATER HAZARD
When disassembling a gasketed joint, always use a new gasket upon reassembly. NEVER RE-USE OLD GASKETS. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

WARNING: HOT WATER HAZARD
Make sure that each flange gasket remains seated in the flange groove during and after installation. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

Apply torque in even increments to both flange bolts until a value of 115 in-lbs. is reached. Both the suction and discharge flange bolts must be torqued in this manner.

If your NBF pump is equipped with a sweat connected pump body, see the following instructions:

1. Use a torch with a sharp pointed flame.
2. Clean tube ends and pump connections thoroughly.
3. Use 95-5 (Tin-Antimony); and a good grade of flux.

CAUTION:
Heat associated with the use of silver solder may damage a pump voiding the warranty. Do not use silver solder. Failure to follow these instructions could result in property damage and/or moderate personal injury.

CAUTION:
Excessive use of solder in a vertical installation may result in damage to the pump impeller. Do not use excessive flux. Failure to follow these instructions could result in property damage and/or moderate personal injury.

4. When sweating the joints, first wrap the pump body with a cool wet rag, then direct the flame with care to avoid subjecting the pump to excessive heat.
5. Check soldered connections for leaks. If resoldering is required, take care to avoid subjecting the pump to excessive heat.

WARNING: WATER LEAKAGE HAZARD
To prevent leakage, make certain that the flange bolts or ring nuts have been adequately tightened and that the solder connections do not leak. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

MODE OF DISCHARGE

The Model NRF/NBF/SSF Circulator can be installed to discharge up or down, horizontally, left or right, but the motor shaft must remain in the horizontal position, the arrow on the body must point in the direction of the flow, the conduit box must be positioned on the top or to the side of the motor housing (see figure 2). If the conduit box position must be changed, it is best to do so before installation. However, if the pump is already installed, see the section titled “REMOVAL OF PUMP FROM EXISTING SYSTEM FOR REPLACEMENT” before proceeding.

CAUTION:
Make sure the power is turned off before placing anything inside the discharge opening to move the impeller.

TO CHANGE THE CONDUIT POSITION

1. Remove the four (4) $^{1}/_{4}$-20 Allen screws ($^{3}/_{16}$ wrench) while supporting the motor assembly.
2. Remove the motor assembly from the pump body and rotate it to the desired position (see figure 2).
3. Replace the Allen screws and tighten evenly in a diagonal method to 60 in-lbs.
4. Check to see that the impeller turns freely. Insert your finger in the discharge port of the pump body (the arrow on the pump body points in the direction of the discharge) until you can feel the impeller and rotate it with your fingertip. If the impeller does not turn easily, repeat the disassembly/reassembly process.

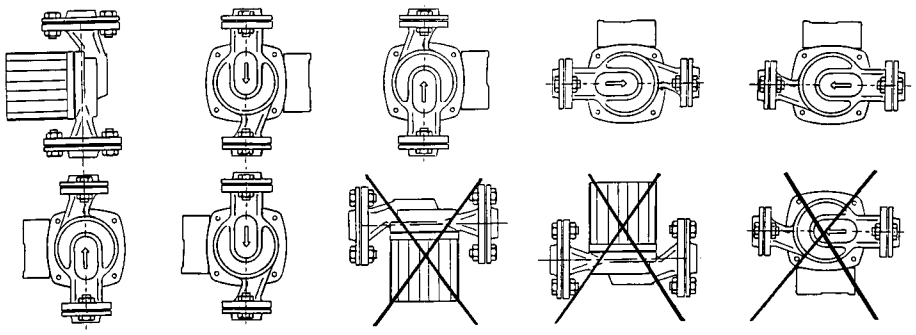

FIG. 2

WARNING: ELECTRICAL SHOCK HAZARD
Disconnect and lock out the power before making electrical connections. Failure to follow these instructions could result in serious personal injury or death.

WIRING INSTRUCTIONS

A. Loosen the screw securing the conduit box cover (wiring compartment), and remove the screw & cover.

B. Attach the appropriate size connector to the hole in the side of the conduit box.

C. Using a minimum size of 14 AWG copper electrical wire (refer to your local code for wiring restrictions), wire the motor to a single phase power source that matches the electrical rating on the pump nameplate. See Fig. 3. Use the size of electrical wire as dictated by local code.

D. Connect the ground wire to the inside of the conduit box with one of the green screws provided inside the box. See Fig. 4.

NOTE: Electrical supply and grounding wires must be suitable for at least 90°C (194°F).

NOTE: Model NRF/NBF/SSF Circulators are impedance protected and do not require external overload protection.

WARNING: ELECTRICAL SHOCK HAZARD
Be certain that all connections are secure and the conduit box cover is closed before electrical power is connected. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

TYPICAL WIRING INSTALLATION SCHEMATIC
1Ø POWER SOURCE

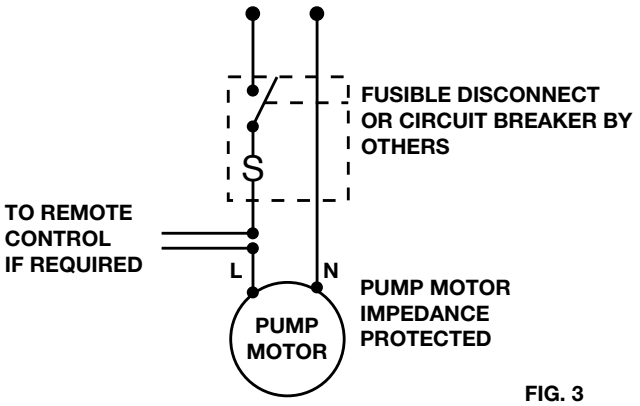

FIG. 3

CONDUIT BOX WIRING DETAIL

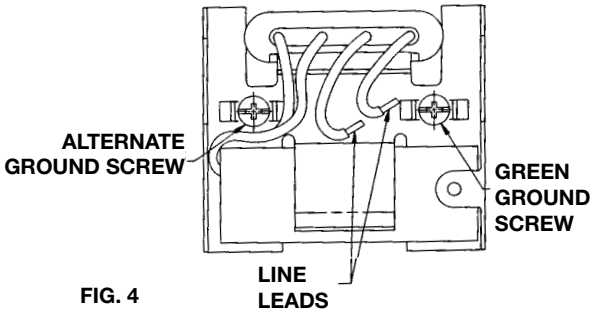

FIG. 4

SYSTEM PREPARATION

Prior to pump start-up, closed heating and cooling systems should be cleaned, drained, and refilled with clean water. The system fluid pH must be maintained between 7 and 9.

START-UP

Do not start pump until the system has been filled and vented. Air should be vented from the system by means of an air vent located at a high point in the system. The system must be completely vented prior to pump operation. Do not run NRF/NBF/SSF circulators dry. Pump operation without water circulation could result in pump and motor damage.

WARNING: HOT WATER LEAKAGE HAZARD
Pressurize the body slowly while checking for leaks at all joints with gaskets or solder connections. Failure to follow these instructions could result in serious personal injury and/or property damage.

PERIODIC INSPECTION

Bell & Gossett NRF/NBF/SSF Circulators are designed to provide years of trouble free service. It is recommended that periodic inspections be made to check for potential problems with the pump. If any leakage or evidence of leakage is present, repair or replace the unit.

xylem
Let's Solve Water

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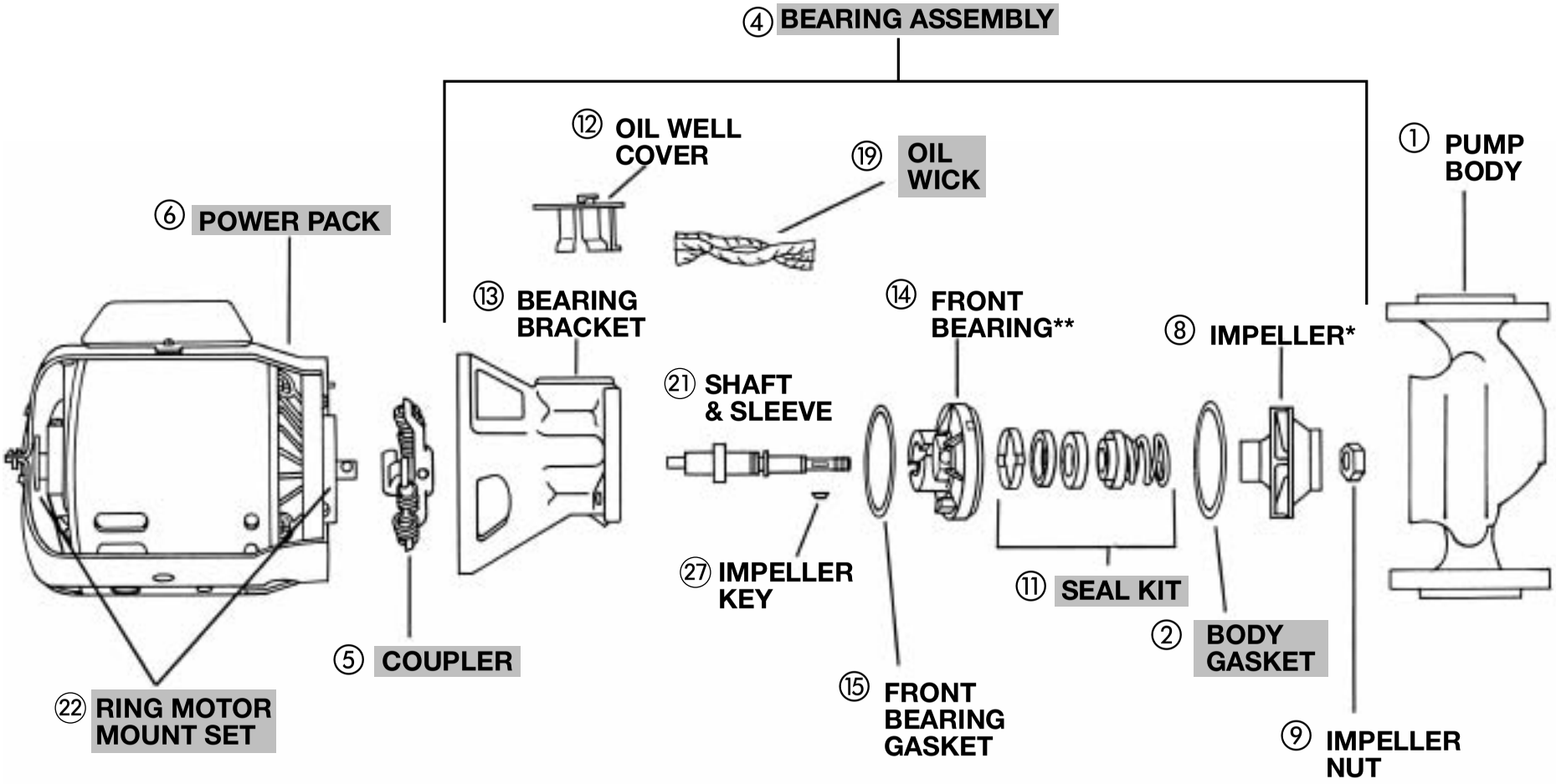
www.xyleminc.com/brands/bellgossett



Circulator

Exploded View
For Series 100, Series HV, 2", PR, 2½", LD-3 &HD-3 Models

*Impeller not always included in Bearing Assembly.

**Shown rotated 90°.

– Factory recommended spare parts.

WALL HYDRANTS

Freezeless Wall Hydrants

With Patented Model 50 High Flow Double Check Backflow Preventer

Model 67/B67/RB67

The Model 67, B67 & RB67 are automatic draining, freezeless wall hydrants with hose connection Backflow Protection. Hydrants drain as handle is shut off, *even if hose is attached.* All models are intended for irrigation purposes and blend in with modern architecture for installation on restaurants, schools, office buildings, churches, apartments, motels, stores, shopping centers and industrial buildings.

SPECIFICATIONS:

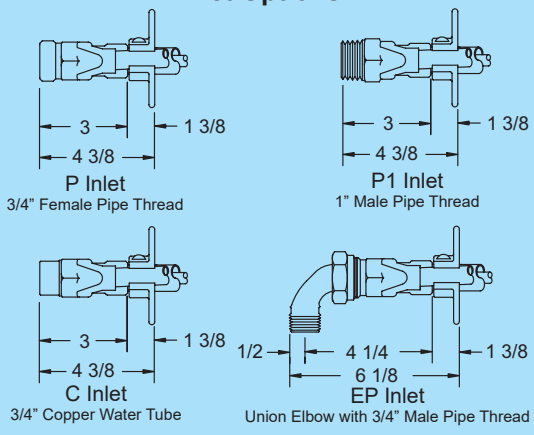
PATENTED HIGH FLOW DOUBLE CHECK BACKFLOW PREVENTER

- NIDEL® Model 50HA with ¾ inch male hose thread
- ASSE Standard 1052 approved
- Field Testable
- Two Independent Check Valves
- No spray back

FEATURES:

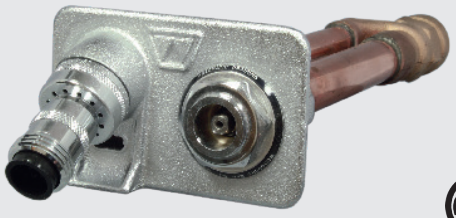
- Permanent type brass valve body with hemispherical seating surface.
- One piece valve plunger accurately controls both flow and drainage with a minimum number of turns and without need for adjustments.
- Drains under nozzle away from hands of operator and with a lip to divert water away from building.
- Copper casing tubes.
- No Lead Solder on all solder joints.
- Hardened stainless steel stem resists damage.
- Loose key operates hydrant.
- 3/8" solid brass operating rod.
- Four inlet options (See below)
- Wall clamp furnished on all 60 series except close coupled.
- Max Pressure: 125 p.s.i.
- Max Temperature: 120° F
- For Patent information: https://Woodfordmfg.com/Patents/

Inlet Options



Specify as follows:

Wall hydrant shall be Woodford Model 67 (exposed type), B67 or RB67 (concealed box type), automatic draining with ASSE 1052 approved NIDEL® Model 50HA double check backflow preventer. ¾" inlet and outlet (specify type of inlet). Hardened stainless steel operating stem and one-piece valve plunger to control both flow and drain functions. Exterior finish to be Chrome Plated (options: Polished Brass or Rough Brass). Loose tee key to be furnished with each hydrant. Wall thickness to be _____ inches.



MODEL 67

Exterior Finish:
Standard - Chrome (CH)
Optional - Brass (BR) Polished Brass (PB)
Fits one standard modular brick course.

MODEL B67

Exterior Finish: Box & Door
Standard - Chrome (CH)
Optional - Brass (BR) Polished Brass (PB)
Anodized Aluminum Box (AL)
Fits two std. modular brick course or one course of facing tile.

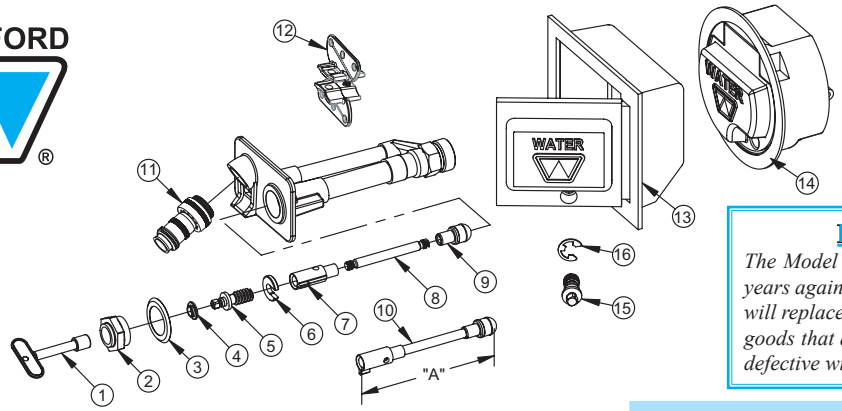
MODEL RB67

Exterior Finish: Box & Door - Chrome (CH) Only
Designed especially for tilt-up wall construction.
Install through 6" diameter hole.
Two 3/8"-16 tapped holes for all-thread anchors in back of box.
Lift and latch door stays open when hydrant is in use.

SEE WOODFORDMFG.COM FOR INSTRUCTIONS AND DETAILS OF APPLICABLE PATENTS AND PATENTS PENDING OR CALL 1-800-621-6032

When ordering, specify model, inlet and wall thickness

WOODFORD



Woodford Excellence Since 1929
Proudly Made In The U.S.A.

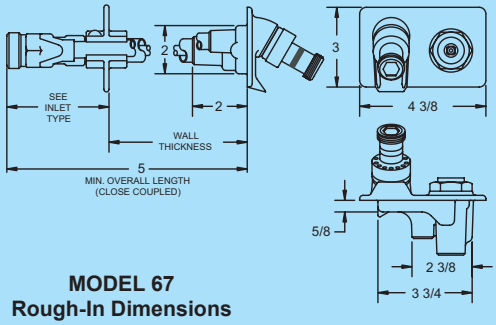
LIMITED WARRANTY

The Model 67 is sold with a limited warranty for five years against defects in material and workmanship. We will replace or issue credit (at our option) for defective goods that are returned for inspection and found to be defective within five years of purchase from Woodford.

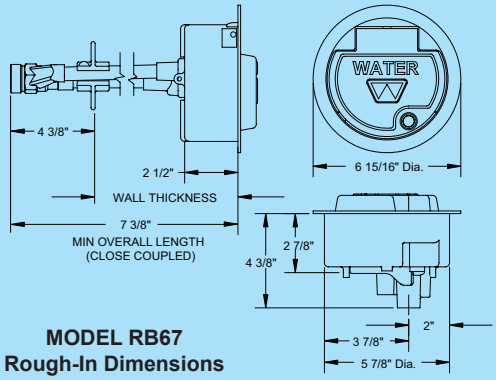
MODEL 67/B67/RB67 PARTS LIST

ITEM	PART #	DESCRIPTION
1	50009	Tee Key
	50010	Long Tee Key (Box Models)
2	50264	Head Nut – chrome
	50265	Head Nut – brass
3	50584	I.D. RING
4	50252	Stem Washer
5	55062	Stem Screw
6	50251	"C" washer
7	51014	Yoke Nut
8	Operating Rod (Sold As Item 10 Only)	
9	50250	Plunger
10	554XX	Operating Rod Assembly (Includes Items 7,8,9)
	(Select required assembled length from table below)	
11	50HA-CH	NIDEL® 50HA Backflow Preventer – chrome
	50HA-BR	NIDEL® 50HA Backflow Preventer – brass
12	55063	Wall Clamp Assembly
13	67BX	Box/Door Assembly – Chrome
	67BX-BR	Box/Door Assembly - Brass
	67BX-PB	Box/Door Assembly – Polished Brass
	67BX-AL	Box/Door Assembly – Aluminum
14	RB67BX	Round Box/Door Assembly - Chrome
	RK-65	Chrome Repair Kit (Includes Items 1, 2, 4-7 & 9)
15	51117	Door Lock Screw - Chrome
	51116	Door Lock Screw - Brass
16	51120	E-Ring

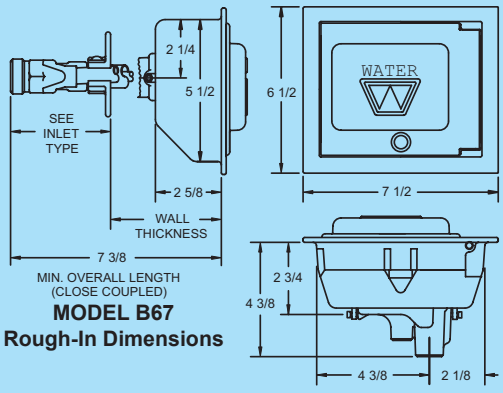
Item 10 - Operating Rod Assy. "A"			
Wall Thickness		Length	Part No.
67	B67/RB67		
CC	CC	3 ½"	55401
N/A	4	4 ½"	55402
4	6	6 ½"	55404
6	8	8 ½"	55406
8	10	10 ½"	55408
10	12	12 ½"	55410
12	14	14 ½"	55412
14	16	16 ½"	55414
16	18	18 ½"	55416
18	20	20 ½"	55418
20	22	22 ½"	55420
22	24	24 ½"	55422
24	N/A	26 ½"	55424



MODEL 67
Rough-In Dimensions



MODEL RB67
Rough-In Dimensions



MODEL B67
Rough-In Dimensions

Wall Thickness (Inch)	CC	4	6	8	10	12	14	16	18	20	22	24
Overall Length - Hydrant	5	8	10	12	14	16	18	20	22	24	26	28
Overall Length - Box Models	7 3/8	8 3/8	10 3/8	12 3/8	14 3/8	16 3/8	18 3/8	20 3/8	22 3/8	24 3/8	26 3/8	28 3/8
Shipping Wt. (Lbs)**	3.8	4.4	4.8	5.2	5.6	6	6.4	6.8	7.2	7.6	8	8.4

** Add 8.3 Lbs. for brass box models.
** Add 2.5 Lbs. for aluminum box models.

NOTE: Close Coupled Models are not recommended for use in freezing climates and cannot use wall clamp.

For more information contact...

WOODFORD MANUFACTURING COMPANY, LLC.

2121 Waynoka Road, Colorado Springs, Colorado 80915 • **Phone:** (800) 621-6032 • **Fax:** (800) 765-4115

To view our complete product line visit: ***www.woodfordmfg.com*** *or email:* ***sales@woodfordmfg.com***

Rev. 3/22 Form No. 67.112

MODEL 60/65/67 WALL HYDRANTS
TROUBLESHOOTING AND MAINTENANCE

Water leaks from drain hole and/or air vent in stem screw when the hydrant is on.

Plunger (50250) is damaged and needs to be replaced. Follow instructions below on how to remove the rod assembly.

Hydrant will not shut off. Water leaks out nozzle or leaks from drain hole when hydrant is off.

If new installation, most likely debris or an obstruction in the seat. Remove rod assembly, inspect plunger
for damage and flush the casing before reassembling.

Hydrant does not drain when it is shut off.

Drain hole cavity in casting and/or air vent hole in stem screw may be blocked with insect nest or other debris. Use a stiff wire to clear any obstructions.

Hydrant does not flow water when it is on.

The vacuum breaker may be obstructed or damaged. Remove the vacuum breaker and check to see if the hydrant flows water with the vacuum breaker removed. Inspect the vacuum breaker for obstruction or damage. If the hydrant still does not flow water with the vacuum breaker removed, remove the rod assembly and turn on the water supply to flush the casing.

Operating rod removal.

To remove the operating rod from the hydrant, shut off the water supply. Turn the stem counterclockwise to the full open position. Remove the head nut and stem screw. Remove the "C" washer from the stem screw and thread the stem screw back in the operating rod one or two turns. Use a pry bar to pry under the ledge of the stem screw, against the face of the hydrant, to pull the rod out of the hydrant. A damaged plunger may require a significant force to pull the rod free. Once the rod is out of the hydrant, inspect and/or replace the plunger, which is threaded on the rod. If the plunger rubber has come off the insert and is stuck inside the hydrant, a special plunger removal tool is available on loan from Woodford.

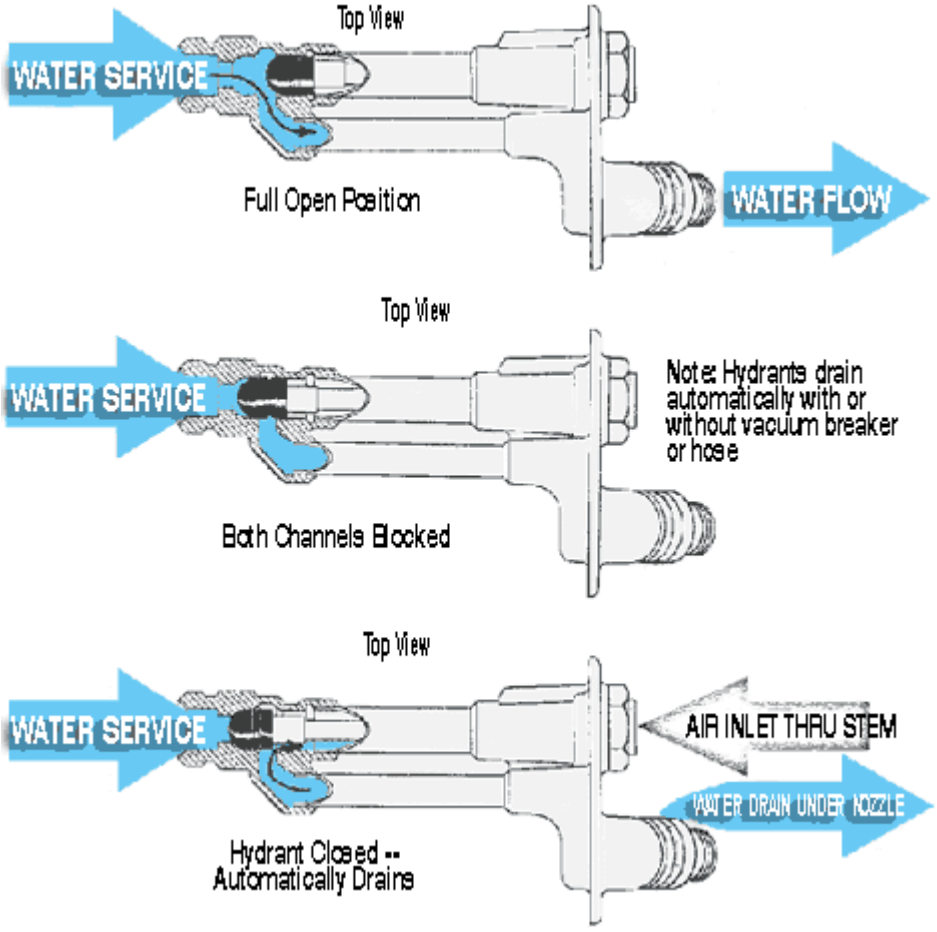
INSTRUCTIONS FOR USING MODEL 65/67 PLUNGER REMOVAL TOOL

With the operating rod removed, screw the removal tool into the center of the plunger rubber until the corkscrew is all the way through the rubber.

Clamp a vise grip pliers about 1" from the face of the hydrant. Using a small pry bar, pry against the vise grips, pulling straight and smooth. Relocate the vise grips as necessary. If the tool pulls loose from the plunger rubber, repeat the process.

Make sure all rubber pieces are removed before replacing the new parts.

Model 65 Freezeless Wall Hydrants
Approved under ASSE Standard 1019 and listed by IAPMO



TECH-NOTE

For more information contact…
WOODFORD MANUFACTURING COMPANY
2121 Waynoka Road, Colorado Springs, Colorado 80915 • Phone: (800) 621-6032 • Fax: (800) 765-4115
To view our complete product line visit: www.woodfordmfg.com or email: sales@woodfordmfg.com
A Division of WCM Industries, Inc.

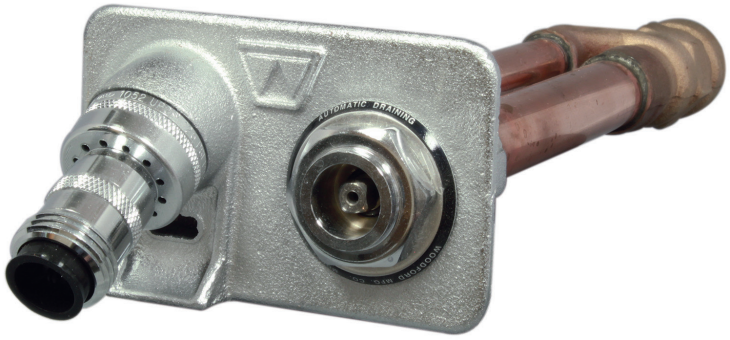
07/12 Rev 2

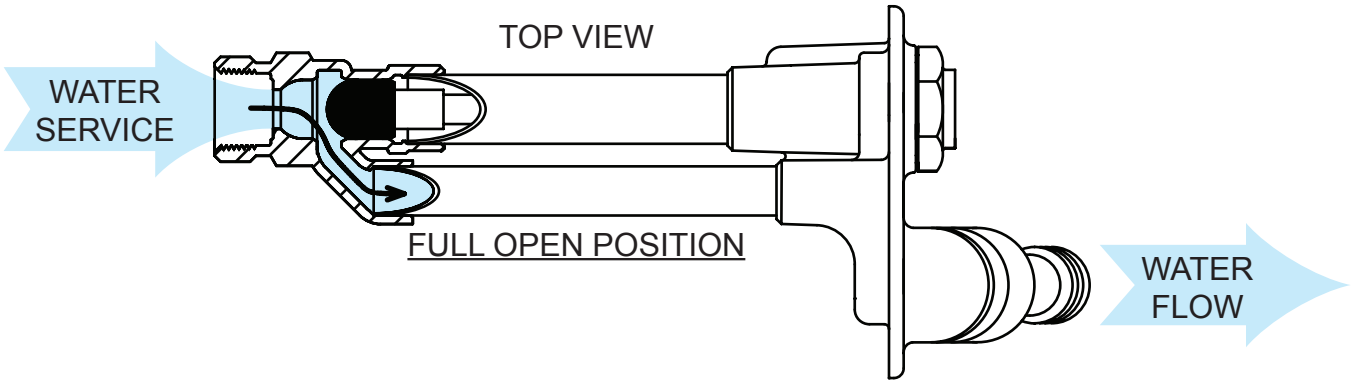
Model 67

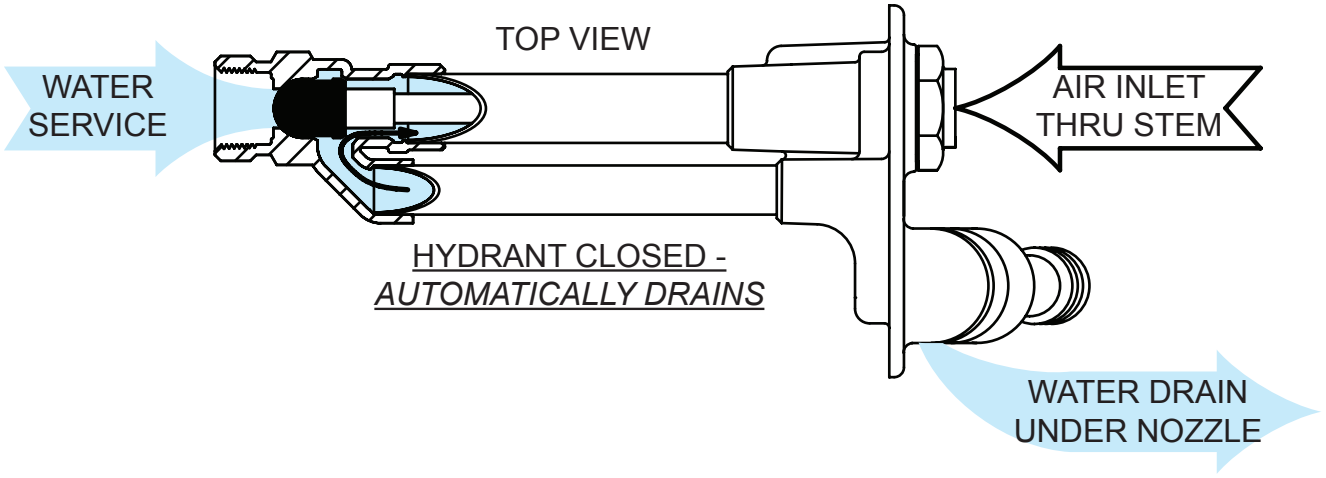
Freezeless Wall Hydrant *with*....

PATENTED HIGH FLOW DOUBLE CHECK BACKFLOW PREVENTER

- NIDEL® Model 50HA with ¾ inch male hose thread
- ASSE Standard 1052 approved
- Field Testable
- Two Independent Check Valves
- Drains automatically when hose is removed
- No spray back







NOTE: HYDRANTS DRAIN AUTOMATICALLY WITH OR WITHOUT HOSE ATTACHED.

TECH-NOTE

For more information contact…
WOODFORD MANUFACTURING COMPANY
2121 Waynoka Road, Colorado Springs, Colorado 80915 • Phone: (800) 621-6032 • Fax: (800) 765-4115
To view our complete product line visit: www.woodfordmfg.com or email: sales@woodfordmfg.com
A Division of WCM Industries, Inc.

07/12 Rev 2

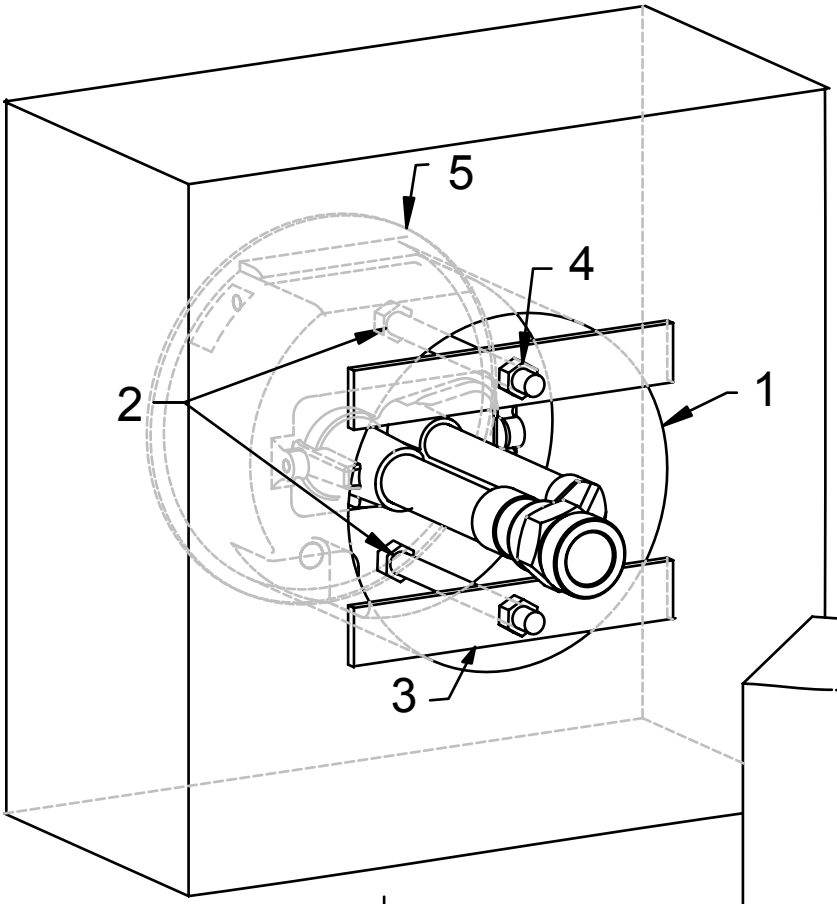
RB65 & RB67

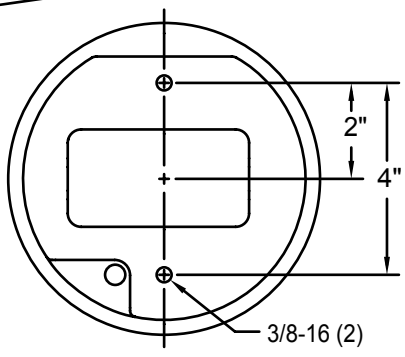
Round box
Installation Instructions

Round Box Patent No. US D470,915 S

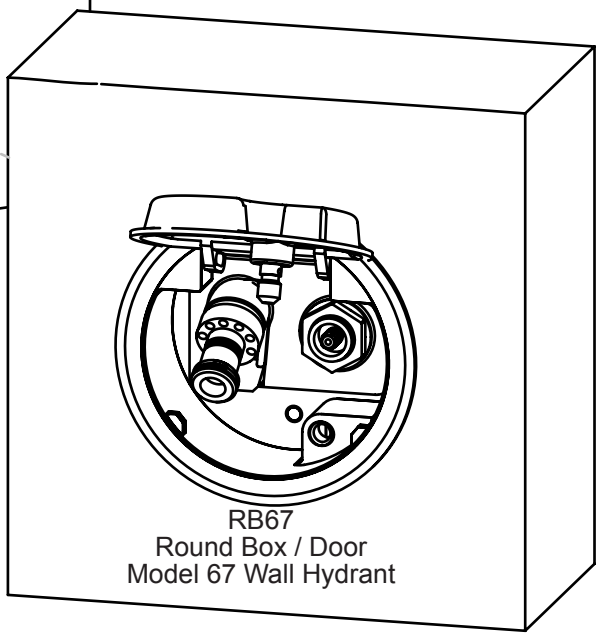
Suggested installation through concrete wall:

1. Using a 6” core drill, locate and core drill a 6” diameter hole through wall.
2. Cut two lengths of 3/8-16 threaded rod long enough to protrude 1” through the back of the hole when box is installed. Spin one 3/8 back-up nut onto each rod to lock rods in place against box. Screw rods into provided tapped holes located in back of round box then tighten back-up nuts.
3. Make two back-up plates from available metal bar or angle to span 6”hole.
4. Set round box assembly in hole. Install back-up plates and draw-up loosely with 3/8 nuts.
5. Position and plumb unit in hole. Tighten back-up plate nuts to complete installation.





Mounting Hole Detail



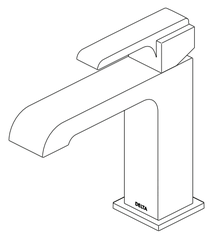
RB67
Round Box / Door
Model 67 Wall Hydrant

FAUCETS

Models/Modelos/Modèles
567LF-▲MPU, 567LF-▲LPU, & 567LF-TP
Series/Series/Seria
ARA®

STOP!

If you are unfamilar with your manufacture date, the label may be located on the Hot inlet tube underneath your sink.
Si no está familiarizado con la fecha de fabricación, es posible que la etiqueta esté ubicada en el tubo de entrada de agua caliente debajo del fregadero.
Si vous n’êtes pas familier avec votre date de fabrication, l’étiquette peut se trouver sur le tube d’arrivée d’eau chaude sous votre évier.

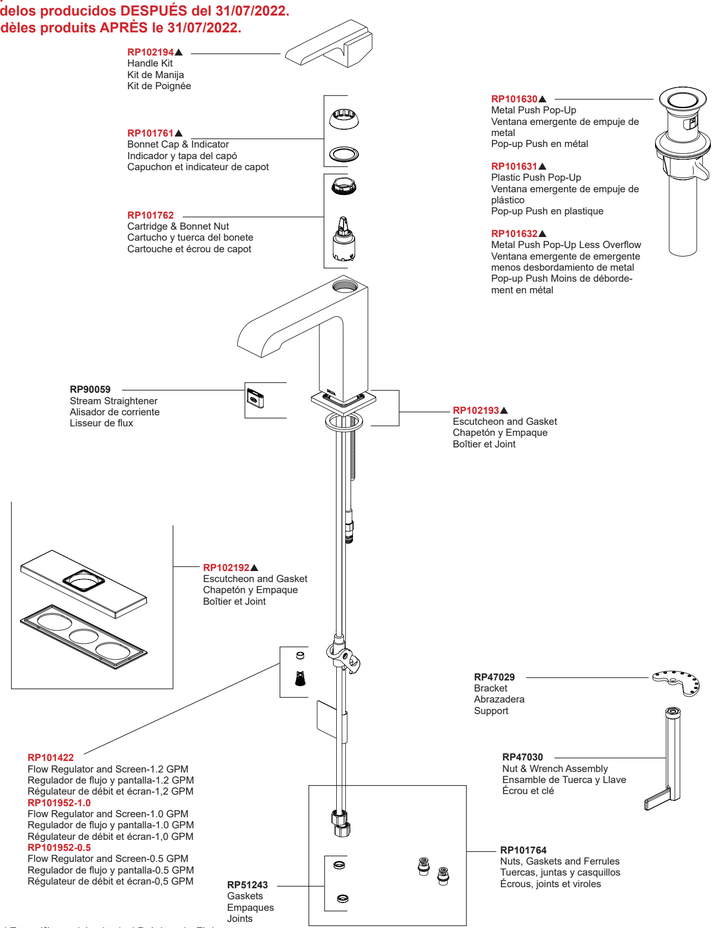


▲Specify Finish / Especifique el Acabado / Précisez le Fini

These parts are not interchangeable - reference your supply line tag to get your MFG Date to ensure correct parts.
Estas piezas no son intercambiables; de consultar la etiqueta de su línea de suministro para obtener la fecha de fabricación para garantizar que las piezas sean correctas.
Ces pièces ne sont pas interchangeables – de référencer l'étiquette de votre ligne d'alimentation pour obtenir votre date MFG afin de garantir que les pièces sont correctes.

Models/Modelos/Modèles
567LF-▲MPU, 567LF-▲LPU, & 567LF-TP
Series/Series/Seria
ARA®

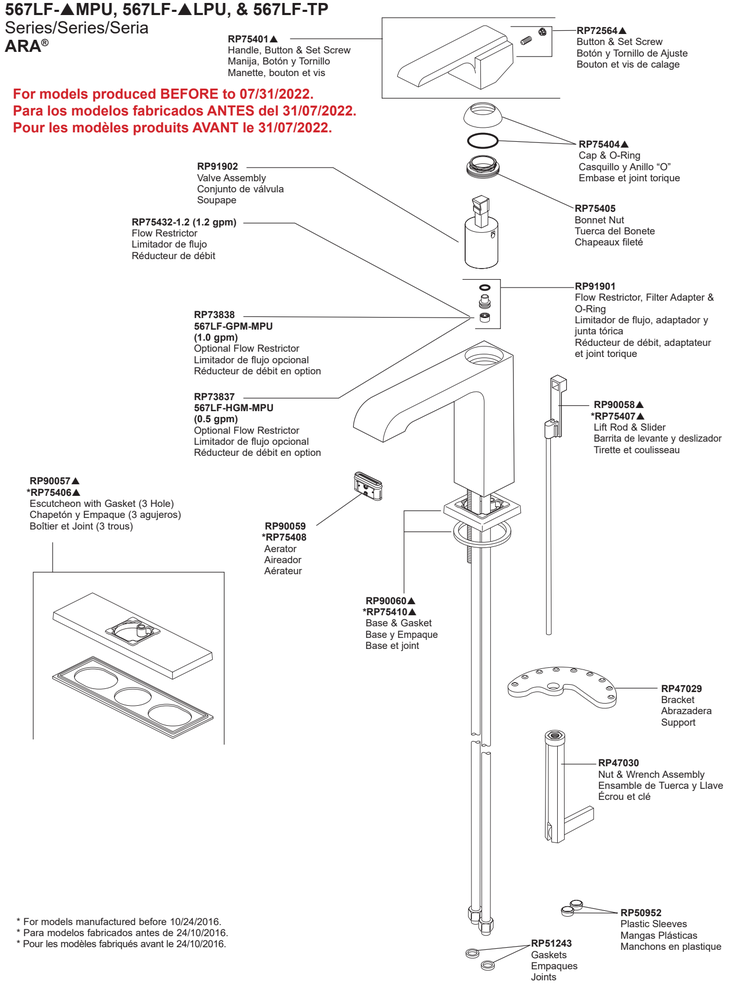
For models produced AFTER 07/31/2022.
Para los modelos producidos DESPUÉS del 31/07/2022.
Pour les modèles produits APRÈS le 31/07/2022.



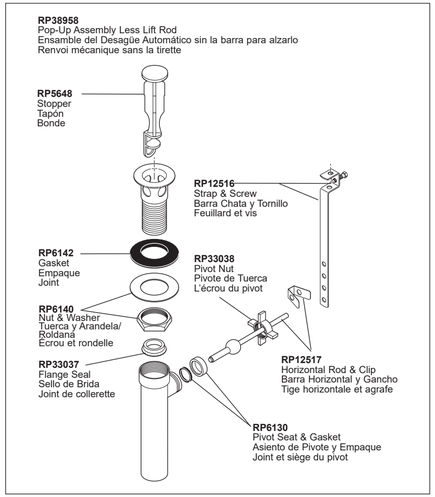
▲Specify Finish / Especifique el Acabado / Précisez le Fini

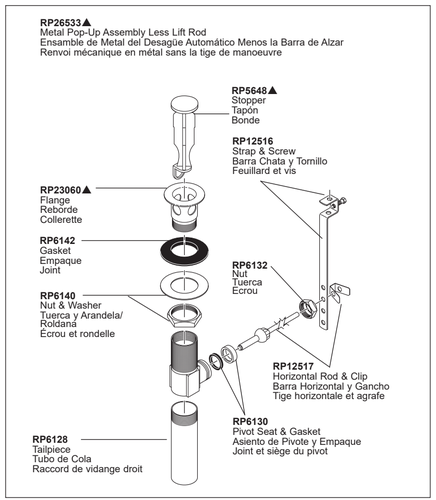
Models/Modelos/Modèles
567LF-▲MPU, 567LF-▲LPU, & 567LF-TP
Series/Series/Seria
ARA®

For models produced BEFORE to 07/31/2022.
Para los modelos fabricados ANTES del 31/07/2022.
Pour les modèles produits AVANT le 31/07/2022.



* For models manufactured before 10/24/2016.
* Para modelos fabricados antes de 24/10/2016.
* Pour les modèles fabriqués avant le 24/10/2016.





DELTA

see what Delta can do℠

115729

X00115729

1 HANDLE BATHROOM FAUCETS
GRIFOS PARA BAÑOS DE 1 MANIJA
ROBINETS DE SALLE DE BAIN À 1 MANETTE

Model Number: _____
Número del modelo
Numéro de modèle

Date of Purchase: _____
Fecha de compra
Date d'achat

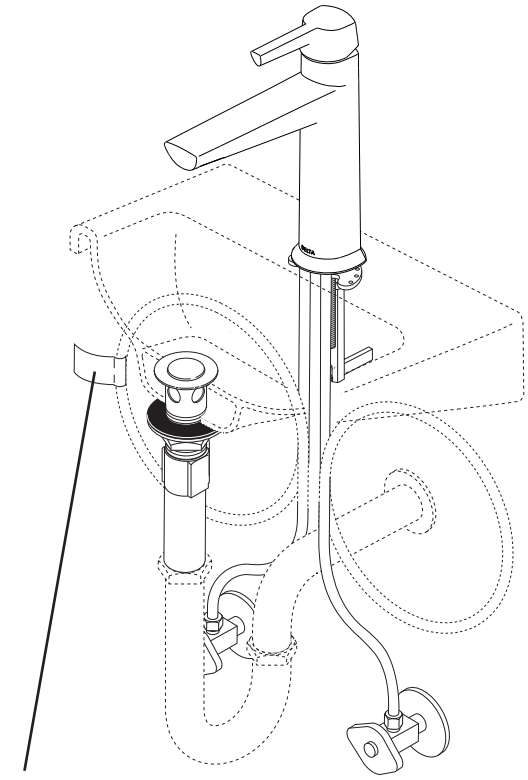
Register Online
Regístrese en línea
S'enregistrer en ligne
www.deltafaucet.com/registerme

To reference replacement parts and access additional technical documents and product info, visit www.deltafaucet.com

Para referencia sobre las piezas de repuesto y acceder a documentos técnicos adicionales e información del producto, visite www.deltafaucet.com

Pour obtenir la référence des pièces de rechange ainsi que pour avoir accès à d'autres documents techniques et renseignements sur le produit, allez à www.deltafaucet.com

1-800-345-3358
www.deltafaucet.com/service-parts



Model number located here.
Número de modelo ubicado aquí.
Numéro de modèle situé ici.

Image is for reference only.
La imagen es sólo para referencia.
L'image est fournie à titre indicatif seulement.

Read all instructions prior to installation.

⚠ CAUTION
Failure to read these instructions prior to installation may result in personal injury, property damage, or product failure. Manufacturer assumes no responsibility for product failure due to improper installation.

Lea todas las instrucciones antes de hacer la instalación.

⚠ ADVERTENCIA
El no leer estas instrucciones de instalación puede resultar en lesiones personales, daños a la propiedad, o falla en el funcionamiento del producto. El fabricante no asume ninguna responsabilidad por la falla del producto debido a una instalación incorrecta.

Veuillez lire toutes les instructions avant l'installation.

⚠ AVERTISSEMENT
L'omission de lire les présentes instructions avant l'installation peut entraîner des blessures, des dommages matériels ou le bris du produit. Le fabricant se dégage de toute responsabilité à l'égard d'un bris du produit causé par une mauvaise installation.

You may need:
Usted puede necesitar:
Articles dont vous pouvez avoir besoin :

Cleaning and Care

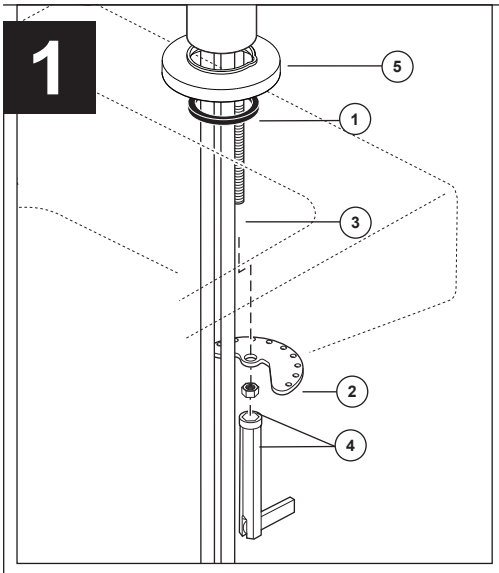
Care should be given to the cleaning of this product. Although its finish is extremely durable, it can be damaged by harsh abrasives or polish. To clean, simply wipe gently with a damp cloth and blot dry with a soft towel.

Limpieza y Cuidado de su Llave

Tenga cuidado al limpiar este producto. Aunque su acabado es sumamente durable, puede ser afectado por agentes de limpieza o para pulir abrasivos. Para limpiar su llave, simplemente frótela con un trapo húmedo y luego séquela con una toalla suave.

Instructions de nettoyage

Il faut le nettoyer avec soin. Même si son fini est extrêmement durable, il peut être abîmé par des produits fortement abrasifs ou des produits de polissage. Il faut simplement le frotter doucement avec un chiffon humide et le sécher à l'aide d'un chiffon doux.



SINGLE HOLE MOUNT INSTALLATIONS

INSTALACIONES EN UN FREGADERO DE UN AGUJERO

INSTALLATIONS DANS UN LAVABO À UN TROU

Slide single hole gasket (1) up over tubes and mounting stud. Slide tubes down through mounting hole and position faucet assembly on sink. **Option: If surface is uneven, use silicone under the gasket.** Place metal bracket (2) over mounting stud (3) under sink. Secure with mounting nut / wrench (4).

Note: A spout base (5) may not be present on some models and gasket (1) mates directly to spout. Check gasket fit to find part with mating groove for gasket.

Deslice el empaque para un orificio (1) sobre los tubos y el perno de montaje. Deslice los tubos hacia abajo por el orificio de montaje y coloque el grifo en el lavamanos. **Opcional: si la superficie es desigual, aplique sellador de silicona debajo del empaque/junta.** Coloque el soporte de metal (2) sobre el perno de montaje (3) debajo del fregadero. Fije la válvula apretando la tuerca de montaje con una llave (4).

Nota: Es posible que la base de la boquilla (5) no esté presente en algunos modelos y la junta (1) se acople directamente a la boquilla. Verifique el ajuste de la junta para encontrar la pieza con ranura de acoplamiento para la junta.

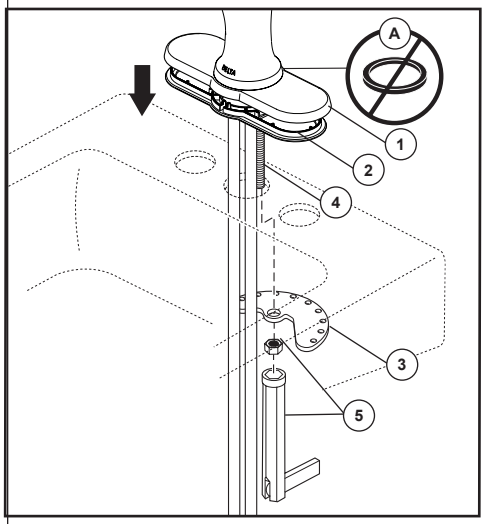
Glissez le joint plat à un trou (1) sur les tubes et le goujon de montage. Par le dessus, introduisez les tubes dans le trou de montage et positionnez le robinet sur le lavabo. **Facultatif : Si la surface est inégale, appliquez du composé d'étanchéité à la silicone sous le joint plat.** Placez le support en métal (2) sur le goujon de montage (3) sous le lavabo. Fixez le robinet en serrant l'écrou de montage avec une clé (4).

Remarque : Une base de bec (5) peut ne pas être présente sur certains modèles et le joint (1) s'accouple directement au bec. Vérifiez l'ajustement du joint pour trouver une pièce avec une rainure d'accouplement pour le joint.

OPTIONAL - ESCUTCHEON INSTALLATIONS - YOUR INSTALL MAY BE ONE OF THE THREE STEPS SHOWN BELOW

OPCIONAL: INSTALACIONES EN UNA PLACA DE GRIFO: UNO DE LOS DOS PASOS A CONTINUACIÓN PUEDE APLICARSE EN SU INSTALACIÓN

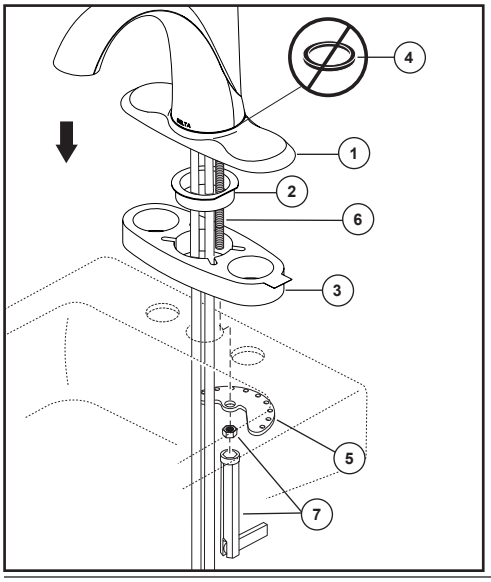
FACULTATIF – INSTALLATIONS DANS UN LAVABO PLAQUE DE FINITION - L'UNE DES DEUX ÉTAPES CI-DES-SOUS PEUT S'APPLIQUER À VOTRE INSTALLATION



Slide escutcheon (1) and 3 hole gasket (2) up over tubes and mounting stud. **Note: Certain models have adhesive on top of 3 hole gasket (2). Remove cover and stick to bottom of escutcheon (1) during installation.** Foam gasket (A) is not required. Slide tubes down through mounting hole and position faucet, escutcheon and gasket on sink. **Option: If sink is uneven, use silicone under the gasket.** Place metal bracket (3) over mounting stud (4) under sink. Secure with mounting nut / wrench (5).

Deslice la placa de cubierta (1) y la junta plana de 3 orificios (2) sobre los tubos y el perno de montaje. **Nota: Algunos modelos tienen adhesivo sobre del empaque de 3 orificios (2). Durante la instalación, retire la cubierta y péguela a la parte inferior de la placa de cubierta (1).** No se requiere empaque (A). Desde arriba, inserte los tubos en el orificio de montaje, luego coloque el grifo, la placa de cubierta y el empaque en el lavamanos. **Opcional: si la superficie del lavamanos es irregular, aplique sellador de silicona debajo del empaque**. Coloque el soporte de metal (3) en el perno de montaje (4) debajo del lavamanos. Asegure la válvula apretando la tuerca de montaje con una llave (5).

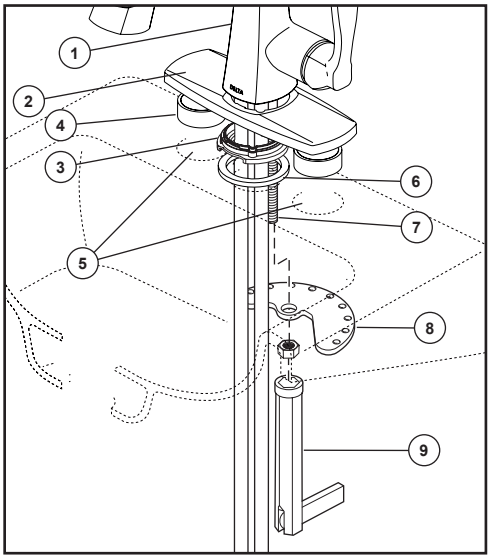
Glissez la plaque de finition (1) et le joint plat à 3 trous (2) sur les tubes et le goujon de montage. **Note : Sur certains modèles, le dessus du joint plat à 3 trous comporte un adhésif (2). Retirez la pellicule et collez le joint au fond de la plaque de finition (1) pendant l'installation.** Le joint plat (A) n'est pas requis. Par le dessus, introduisez les tubes dans le trou de montage, puis positionnez le robinet, la plaque de finition et le joint plat sur le lavabo. **Facultatif : Si la surface du lavabo est inégale, appliquez du composé d'étanchéité à la silicone sous le joint plat.** Placez le support en métal (3) sur le goujon de montage (4) sous le lavabo. Fixez le robinet en serrant l'écrou de montage avec une clé (5).



Slide escutcheon (1), base (2) and 3 hole gasket (3) up over tubes and mounting stud of faucet. **Note: Certain models have adhesive to top of 3 hole gasket (3). Remove cover and stick to bottom of escutcheon (1) during installation.** Foam gasket (4) is not required for 3 hole mounting. Slide tubes down through mounting hole and position faucet on sink. **Option: If sink is uneven, use silicone under the gasket.** Place metal bracket (5) over mounting stud (6) under sink. Secure with mounting nut / wrench (7).

Deslice el chapetón (1), empaque de agujero base (2) y 3 (3) hacia arriba sobre tubos y perno de montaje del grifo. **Nota: Algunos modelos tienen adhesivo sobre del empaque de 3 orificios (3). Durante la instalación, retire la cubierta y péguela a la parte inferior de la placa de cubierta (1).** Junta (4) no es necesaria para el montaje de orificio 3. Deslice las tuberías hacia abajo por el agujero de la instalación y coloque la llave de agua, la chapa y el empaque en el lavamanos. **Opción: Si el lavamanos está desnivelado, use silicón por debajo del empaque.** Coloque el soporte de metal (5) sobre el perno de instalación (6) por debajo del lavamanos. Fije con la tuerca de instalación / la llave de tuercas (7).

Glisser l'écusson (1), le joint de base (2) et 3 trous (3) vers le haut plus de tubes et de la tige de fixation du robinet. **Note : Sur certains modèles, le dessus du joint plat à 3 trous comporte un adhésif (3). Retirez la pellicule et collez le joint au fond de la plaque de finition (1) pendant l'installation.** Joint (4) n'est pas nécessaire pour le montage de trou 3. Par le haut, introduisez les tubes dans le trou de montage et positionnez le robinet, la plaque de finition et le joint sur l'évier. **Facultatif : Si l'évier est inégal, appliquez du composé d'étanchéité à la silicone sous le joint.** Placez le support en métal (5) sur le goujon de montage (6) sous l'évier. Fixez-le en serrant l'écrou de montage avec la clé (7).

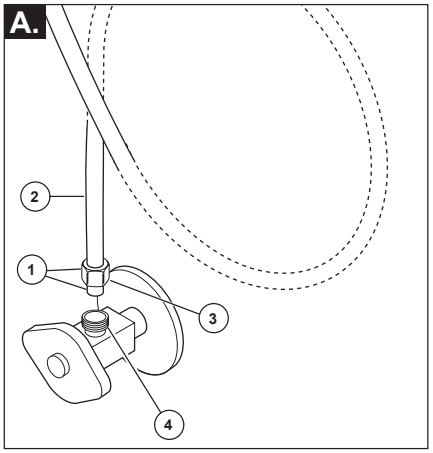


Ensure the surfaces around deck holes (5) are clean. Gently peel paper backing from two foam gaskets (4) and attach to sink, centered over holes (5) with adhesive side down to prevent shifting. Slide escutcheon (2) up over tubes and mounting stud of faucet (1). Snap on base (3) into center hole on escutcheon (2), put gasket (6) under the base (3) and place the faucet over the mounting holes. Place metal bracket (8) over mounting stud (7) under sink. Secure with mounting nut / wrench (9).

Asegúrese de que las superficies alrededor de los orificios de la cubierta (5) estén limpias. Despegue suavemente el soporte de papel de dos juntas de espuma (4) y conéctelo al fregadero, centrado sobre los orificios (5) con el lado adhesivo hacia abajo para evitar el desplazamiento. Deslice el escudo (2) hacia arriba sobre los tubos y el perno de montaje del grifo (1). Encaje la base (3) en el orificio central del escudo (2), coloque la junta (6) debajo de la base (3) y coloque el grifo sobre los orificios de montaje. Coloque el soporte metálico (8) sobre el perno de montaje (7) debajo del fregadero. Asegurar con tuerca de montaje / llave (9).

Assurez-vous que les surfaces autour des trous de terrasse (5) sont propres. Décollez délicatement le support en papier de deux joints en mousse (4) et fixez-le à l'évier, centré sur des trous (5) avec le côté adhésif vers le bas pour éviter tout déplacement. Faites glisser l'écusson (2) sur les tubes et le goujon de montage du robinet (1). Encliquetez la base (3) dans le trou central de l'écusson (2), placez le joint (6) sous la base (3) et placez le robinet sur les trous de montage. Placer le support métallique (8) sur le goujon de montage (7) sous l'évier. Fixer avec écrou de montage / clé (9).

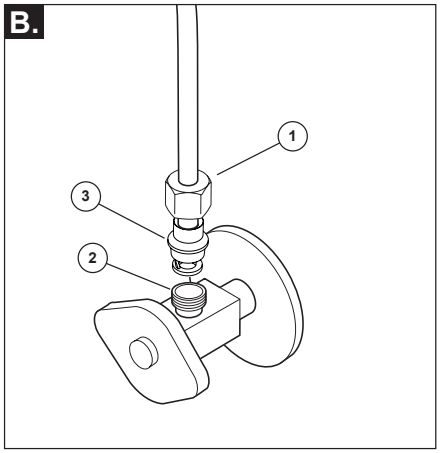
2



OR

O

OU



A. Standard Connections

NOTICE

To avoid risk of property damage, Follow instructions for proper installation. Failure to follow these instructions may result in risk of property damage caused by leaking at this connection. Do not use pipe dope or other sealants on water line connections.

Ensure all fittings and end connections are free of debris. Faucet fittings (1) are 3/8" compression. Loop tubing (2) if it is too long. **Note: Recommended tubing minimum bend diameter is 4".** Secure metal nut (3) to supply valve connection (4). Turn nut until it feels snug. Then tighten nut at least 2 more turns with a wrench. Repeat for other tube. Turn on water, examine for leaks.

B. Custom Fit Connections

NOTICE

If you determine the PEX supply tubing for this faucet is too long and must be shorter to create an acceptable installation, be sure to read the instructions and plan ahead. When cutting the supply tubing the installer accepts the responsibility to do so in a way that allows a leak-free joint to be created. Delta is not responsible for tubing that is cut too short or cut in a way that will not allow for a leak-free joint. DO NOT use a metal sleeve (ferrule) or gasket (supplied with faucet) in place of the plastic sleeve (ferrule) supplied, it may not create a leak-free joint. Do not use pipe dope or other sealants on water line connections.

For custom fit installations, you must use plastic sleeves (ferrules) supplied with model and nuts included on supply lines. **Tube cut must be straight.** See plastic sleeve (ferrule) installation instructions found in and included in this document for more information.

Slide nut (1) over plastic sleeve (ferrule) (3). Start nut by hand onto supply valve connection (2) to prevent cross-threading. Turn nut until it feels snug. Then tighten nut at least 2 more turns with a wrench. Repeat for other supply line. Turn on water, examine for leaks.

Potential Problems and Remedies

- **Tubing is not cut perpendicular to the axis of the tube:** carefully make an additional cut, being careful not to cut the tube too short.
- **Tubing is cut too short:** buy a coupling union and a replacement supply line that mate together from a store. The coupling union end intended to connect to the faucet must mate to the standard 3/8" connection nuts and plastic sleeves (ferrules) supplied with the faucet.
- **The plastic sleeve (ferrule) or connection nut is lost:** purchase a replacement nut and/or plastic sleeve (ferrule) that are designed to seal with PEX tubing.

A. Conexiones Estándares

AVISO

Para evitar el riesgo de daños a la propiedad, siga las instrucciones para una instalación adecuada. El incumplimiento de estas instrucciones puede resultar en arriesgar dañar la propiedad causado por fugas en esta conexión. No utilice compuestos para tuberías ni otros selladores en las conexiones de las líneas de agua.

Asegúrese de que todos los accesorios y las conexiones extremas estén libres de residuos. Los acce Asegúrese de que todos los accesorios y las conexiones extremas estén libres de residuos. Los accesorios de la llave de agua (1) son de 3/8"compresión. Enlace el tubo (2) si es demasiado largo. **Nota: el diámetro mínimo recomendado de la curva del tubo es de 4".** Fije la tuerca metálica (3) a la conexión de la válvula de suministro (4). Gire la tuerca hasta que se sienta ajustada. Luego apriete la tuerca por lo menos 2 vueltas más con una llave de tuercas. Repita con el otro tubo. Abra el agua, examine para detectar fugas.

B. Conexiones Especiales

AVISO

Si determina que el tubo de suministro de PEX para esta llave de agua es demasiado largo y debe ser más corto para crear una instalación aceptable, asegúrese de leer las instrucciones y planificar con anticipación. Al cortar la tubería de suministro, el instalador acepta la responsabilidad de hacerlo de una manera que permita crear una junta libre de fugas. Delta no es responsable de que los tubos estén cortados demasiado cortos o de una manera que no permita una unión libre de fugas. NO use un manguito o funda de metal (casquillo) o el empaque (suministrado con la llave de agua) en lugar del manguito plástica (casquillo) suministrada, porque es posible no crear una conexión sin fugas. No use compuesto de tuberías ni otros selladores en las conexiones de la línea de agua.

Para instalaciones hechas a la medida, debe usar manguitos plásticos (casquillos) suministrados con el modelo y las tuercas incluidas en las líneas de suministro. El corte del tubo debe ser recto. Consulte las instrucciones de instalación del manguito plástico (casquillo) que se encuentran y se incluyen en este documento para obtener más información.

Deslice la tuerca (A) sobre el manguito plástico (casquillo) (C). Coloque la tuerca a mano en la conexión de la válvula de suministro (B) para evitar que se entrecrucen. Gire la tuerca hasta que se sienta ajustada. Luego apriete la tuerca por lo menos 2 vueltas más con una llave de tuercas. Repita con la otra línea de suministro. Abra el agua, examine para detectar fugas.

Averías potenciales y remedios

- **Si el tubo no se corta perpendicular al eje del tubo:** con cuidado haga un corte adicional, teniendo cuidado de no cortar el tubo demasiado corto.
- **Si la tubería se corta demasiado corta:** compre en una tienda una unión de acoplamiento y una línea de suministro de repuesto que se acoplen. El extremo de la unión del acoplamiento destinado a conectarse la llave de agua/grifo debe acoplarse con las tuercas de conexión de 3/8" estándar y los manguitos plásticos (casquillos) suministrados con la llave de agua.
- **Si el manguito plástico (casquillo) o la tuerca de conexión se pierde:** compre una tuerca de repuesto y/o manguito plástico (casquillo) que estén diseñados para sellar con tubería PEX.

A. Branchements Standard

AVIS

Pour prévenir les risques de dommages matériels, respectez les instructions d'installation. L'omission de respecter ces instructions pourrait entraîner des dommages matériels causés par une fuite de ce raccord. N'utilisez pas de pâte lubrifiante ni d'autres produits d'étanchéité sur les raccords de cette conduite d'eau.

Assurez-vous que tous les raccords et les raccords d'extrémité sont exempts de corps étrangers. Ce robinet est muni de raccords (1) à compression de 3/8 po. Cintrer le tube (2) s'il est trop long. Note : Le diamètre de cintrage recommandé est de 4 po. Fixez l'écrou en métal (3) au raccord du robinet d'alimentation (4). Serrez l'écrou jusqu'à ce qu'il soit appuyé, puis faites au moins 2 tours supplémentaires avec une clé. Installez l'autre tube de la même manière. Rétablissez l'alimentation en eau et vérifiez l'étanchéité.

B. Branchements Spéciaux

AVIS

Si vous constatez que le tube d'alimentation en PEX de ce robinet est trop long et vous devez le sectionner pour faire une installation acceptable, lisez les instructions et prévoyez le coup. L'installateur qui sectionne le tube d'alimentation a la responsabilité de le faire d'une manière qui permettra la réalisation d'un joint étanche. Delta se dégage de toute responsabilité dans l'éventualité où le tube sectionné serait trop court ou ne permettrait pas la réalisation d'un joint étanche. N'UTILISEZ PAS le manchon métallique (virole) ou le joint plat (fourni avec le robinet) à la place du manchon de plastique (virole) fourni. Le raccord pourra fuir. N'utilisez pas de pâte lubrifiante ni d'autres produits d'étanchéité sur les raccords de cette conduite d'eau.

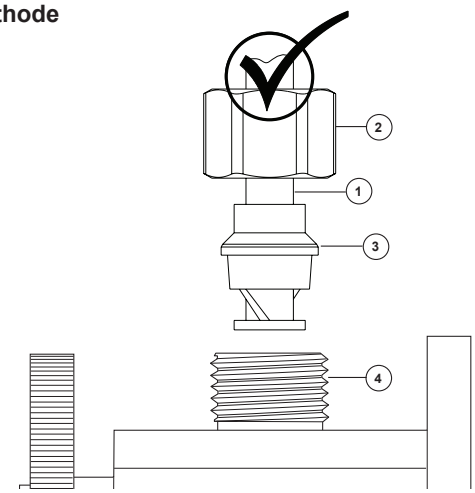
Pour les installations sur mesure, vous devez utiliser les manchons en plastique (viroles) fournis avec le modèle et les écrous qui se trouvent sur les tubes d'alimentation. Le tube doit être sectionné perpendiculairement à son axe. Pour obtenir plus de renseignements, veuillez consulter la section du présent document qui traite de l'installation du manchon en plastique (virole).

Glissez l'écrou (A) sur le manchon en plastique (virole) (C). Amorcez l'écrou à la main sur le raccord du robinet d'alimentation (B) pour ne pas risquer de foirer le filets. Tournez l'écrou jusqu'à ce qu'il soit appuyé. Faites ensuite au moins deux tours supplémentaires à l'aide d'une clé. Branchez l'autre tube d'alimentation de la même manière. Rétablissez l'alimentation en eau et vérifiez l'étanchéité.

Problèmes et solutions possibles

- **Le tube n'est pas coupé perpendiculairement à l'axe du tube :** sectionnez le tube de nouveau minutieusement en vous assurant qu'il ne sera pas trop court.
- **Le tube a été sectionné et il est trop court :** achetez un raccord-union et un tube d'alimentation de rechange. L'extrémité du raccord-union doit être compatible avec les écrous de raccordement de 3/8 po et les manchons en plastique (viroles) fournis avec le robinet.
- **Le manchon en plastique (virole) ou l'écrou de raccordement a été perdu :** achetez un écrou et/ou un manchon en plastique (virole) conçus pour assurer l'étanchéité avec un tube en PEX.

Correct method
Método Correcto
Bonne méthode



NOTICE

Failure to use plastic sleeve (ferrule) in the correct orientation will result in disconnection and possible water damage.

1. Determine desired length of supply tube (1). Leave 1" or 2" of extra length to allow for easier installation and cut tube. Ensure cut is straight and burr free.

2. Slide nut (2) and plastic sleeve (ferrule) (3) onto cut supply tube. Ensure plastic sleeve (ferrule) is oriented as shown.

3. Insert supply tube into supply valve connection (4). Supply tube should touch bottom of hole inside supply valve.

4. Slide plastic sleeve (ferrule) down supply tube until it contacts the supply valve connection.

5. Slide nut over plastic sleeve (ferrule). Start nut by hand to prevent cross-threading. Turn nut until it feels snug. Then tighten nut at least 2 more turns with a wrench. Repeat for other supply line. Turn on water, examine for leaks.

AVISO

Si no utiliza el manguito plástico (casquillo) en la orientación correcta resultará en la desconexión y el posible daño por agua.

1. Determine el largo deseado del tubo de suministro (1). Agregue 1” ó 2” de más para permitir una instalación más fácil y corte el tubo. Asegúrese que el corte es recto y sin rebabas.

2. Deslice la tuerca (2) y el manguito plástico (casquillo) (3) en el tubo cortado de suministro. Asegúrese el manguito plástico (casquillo) está orientado, como se muestra.

3. Introduzca el tubo de suministro en la conexión de la válvula de suministro (4). El tubo de alimentación debe tocar el fondo del agujero dentro de la válvula de suministro.

4. Deslice el manguito plástico (casquillo) por el tubo de suministro hasta que tenga contacto con la conexión de la válvula de suministro. AVISO: Si no utiliza el manguito plástico (casquillo) en la orientación correcta resultará en la desconexión y el posible daño por agua.

5. Deslice la tuerca sobre el manguito plástico (casquillo). Coloque la tuerca a mano para evitar que se entrecrucen. Gire la tuerca hasta que se sienta ajustada. Luego apriete la tuerca por lo menos 2 vueltas más con una llave de tuercas. Repita con la otra línea de suministro. Abra el agua, examine para detectar fugas

NOTE:

Si le manchon en plastique (bague) n’est pas installé correctement, le raccord peut se défaire et occasionner un dégât d’eau.

1. Coupez le tube d’alimentation (1) à la longueur désirée. Laissez 1 à 2 pouces de jeu pour faciliter l’installation. Faites une coupe d’équerre et enlevez les bavures.

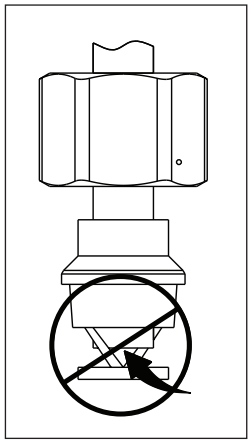
2. Glissez l’écrou (2) et le manchon en plastique (bague) (3) sur le tube d’alimentation coupé. Assurez-vous que le manchon en plastique est orienté comme le montre la figure.

3. Introduisez le tube d’alimentation dans le raccord du robinet d’alimentation (4). Le tube doit toucher le fond du trou à l’intérieur du raccord du robinet d’alimentation.

4. Faites glisser le manchon en plastique (bague) dans le tube jusqu’à ce qu’il entre en contact avec le raccord du robinet d’alimentation.

5. Glissez l’écrou sur le manchon en plastique (virole). Amorcer l’écrou à la main pour ne pas risquer de foirer les filets. Tournez l’écrou jusqu’à ce qu’il soit appuyé. Faites ensuite au moins deux tours supplémentaires avec une clé. Branchez l’autre tube d’alimentation de la même manière. Rétablissez l’alimentation en eau et vérifiez l’étanchéité.

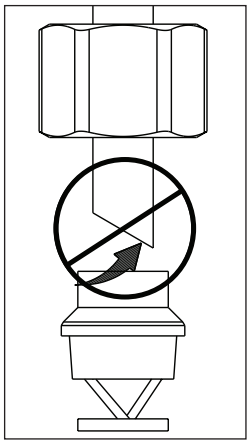
Incorrect Installation
Instalación Incorrecta
Installation Incorrecte



Ensure tube is fully inserted into stop before sliding sleeve down to engage top of fitting.

Asegúrese que el tubo este completamente introducido dentro del tope antes de deslizar la manga hacia abajo para encajar la parte superior del accesorio.

Assurez-vous que le tube est introduit entièrement dans le robinet d’arrêt avant de faire glisser le manchon vers le bas pour le fixer à la partie supérieure du raccord.



Ensure cut is straight.

Asegúrese que el corte esté recto.

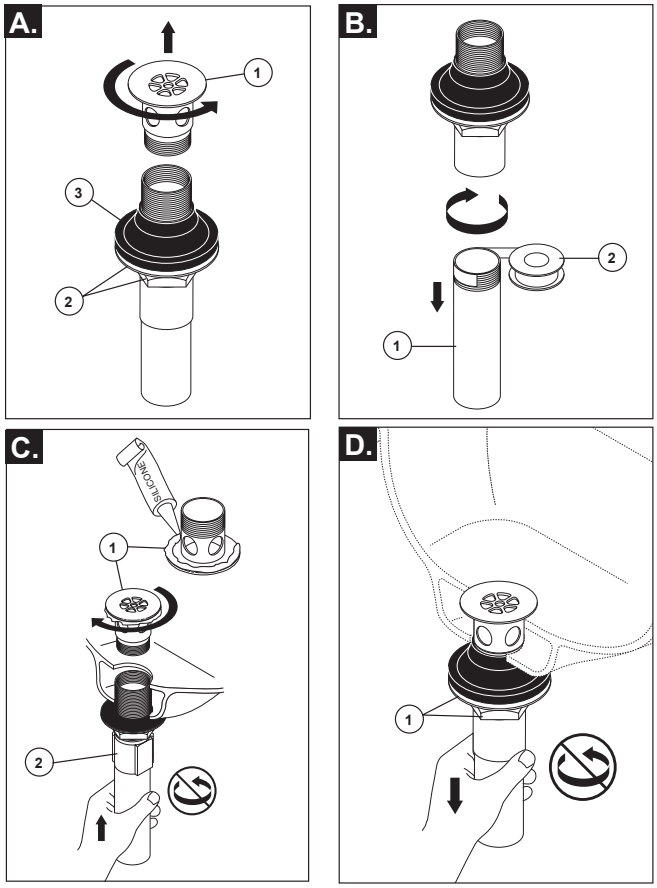
Assurez-vous que la coupe est droite.

3

IF YOUR BATHROOM FAUCET WAS SUPPLIED WITH A POP-UP OR GRID STRAINER, SELECT ONE OF THE INSTALLATIONS PROVIDED BASED ON YOUR TYPE OF DRAIN. (REFER TO INSTALLATIONS FOUND ON PAGE 7).

SI SU GRIFO DE BAÑO TIENE UN DESAGÜE AUTOMÁTICO O FILTRO DE REJILLA, SELECCIONE UNO DE LOS MÉTODOS DE INSTALACIÓN SEGÚN EL TIPO DE REFERENCIA. (CONSULTE LOS MÉTODOS DE INSTALACIÓN DESCRITOS EN LAS PÁGINA 7.)

SI VOTRE ROBINET DE SALLE DE BAIN EST MUNI D'UN RENVOI MÉCANIQUE OU D'UNE CRÉPINE, SÉLECTIONNEZ UNE DES MÉTHODES D'INSTALLATION SELON LE TYPE DE RENVOI. (REPORTEZ-VOUS AUX MÉTHODES D'INSTALLATION DÉCRITES AUX PAGE 7.)



Grid Strainer Installation

A. Remove grid flange (1). Screw nut and washer (2) down as far as possible. Push gasket (3) down to nut and washer.

B. Remove tailpiece (1) and apply plumber tape (2) to threads. Replace tailpiece.

C. Apply silicone sealant to underside of grid flange (1). Insert grid strainer assembly (2) up through bottom of lavatory. Screw grid flange back on and secure.

D. Pull grid strainer straight down into drain hole and secure gasket nut and washer (1). DO NOT TURN GRID STRAINER WHILE TIGHTENING NUT OR SEALANT MAY NOT SEAL DRAIN. REMOVE EXCESS SEALANT. Connect assembly to drain.

Instalación de la Rejilla Coladora

A. Quite el reborde de la rejilla (1). Atornille la tuerca y la arandela (2) lo más posible. Empuje el empaque (3) hacia abajo, hacia la tuerca y la arandela.

B. Quite el tubo de cola (1) y aplique cinta plomero (2) a las roscas. Coloque otra vez el tubo de cola.

C. Aplique sellador de silicón a la parte de abajo del reborde de la rejilla (1). Inserte el ensamble de la rejilla-colador (2) hacia arriba por debajo del lavamanos. Atornille, otra vez, el reborde de la rejilla y fíjelo.

D. Hale la rejilla colador directamente hacia abajo, que quede dentro del hoyo del drenaje, y fije la tuerca del empaque y la arandela (1). NO GIRE LA REJILLA O EL SELLADO PUEDA NO SELLAR EL DRENAJE. LIMPIE EL EXCESO DE SELLADOR. Conecte el ensamble al desagüe.

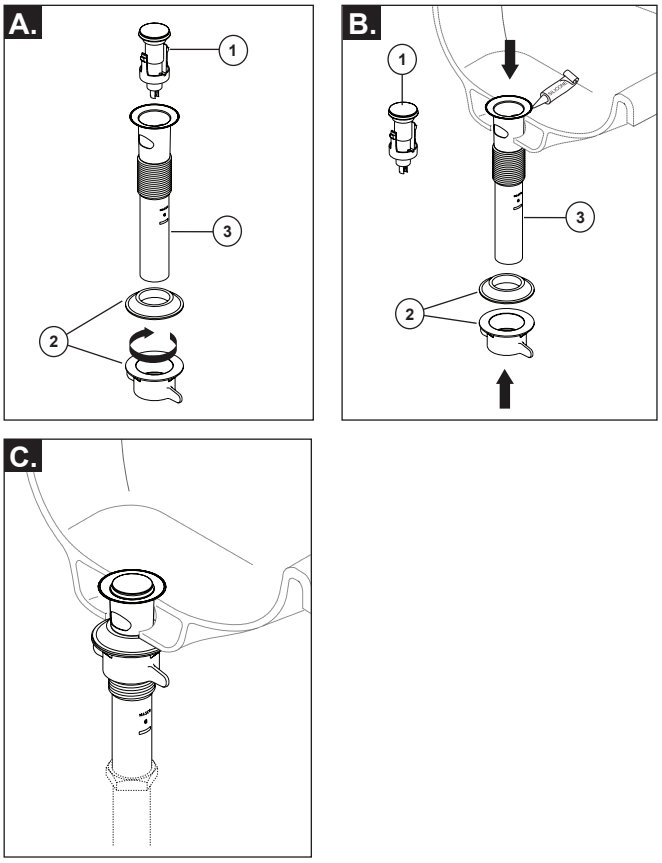
Installation de la crépine

A. Retirez la collerette de la crépine (1). Vissez l'écrou avec la rondelle (2) autant ue possible. Abaissez le joint (3) contre l'écrou et la rondelle.

B. Enlevez le raccord droit de vidange (1) et appliquez du ruban de plomberie (2) sur les filtets. Remettez le raccord en place.

C. Appliquez du composé à la silicone contre le dessous de la collerette de la crépine (1). Introduisez la crépine (2) dans l'orifice par le dessous du lavabo. Remettez la collerette en place et vissez-la à fond.

D. Tirez la crépine vers le bas dans l'orifice et vissez l'écrou contre la rondelle et le joint (1). D'ÉTANE FAITES PAS TOURNER LA CRÉPINE EN SERRANT L'ÉCROU CAR LE COMPOSÉ D'ÉTANCHÉITÉ POURRA PERDRE SON EFFICACITÉ. ENLEVEZ LE COMPOSÉ D'ÉTANCHÉITÉ EN TROP. Fixez l'ensemble au renvoi.



Push Pop-up Installation

A. Remove Stopper (1) rotate 90° and then pull upwards. Remove the gasket, seal and nut (2) from the assembly. Remove drain (3).

B. Apply silicone sealant to the underside of the flange before installation into sink. Slide drain (3) through sink hole. Insert seal (2) and secure with nut (2) from underneath the sink. **Note: Ensure correct orientation of seal (2).** Do not turn drain (3) while tightening nut (2) or sealant may not seal drain. Remove excess sealant. Press stopper (1) downward into drain (3) and rotate 90° and then pull upwards.

C. Connect assembly to drain.

Instalación del desagüe automático a presión

A. Retire el tapón (1), gírelo 90° y luego hale hacia arriba. Retire el empaque, el sello y la tuerca (2) del conjunto. Retire el desagüe (3).

B. Aplique sellador de silicona en la parte inferior de la brida antes de instalarlo en el fregadero. Deslice el desagüe (3) a través del orificio del fregadero. Inserte el sello (2) y asegúrelo con la tuerca (2) desde debajo del fregadero. **Nota: Asegure la orientación correcta del sello (2).** No gire el drenaje (3) mientras aprieta la tuerca (2) o el sellador no sellará el drenaje. Elimine el exceso de sellador. Presione el tapón (1) hacia abajo en el desagüe (3) y gírelo 90° y luego hale hacia arriba.

C. Conecte el ensamble al drenaje.

Installation du renvoi mécanique à poussoir

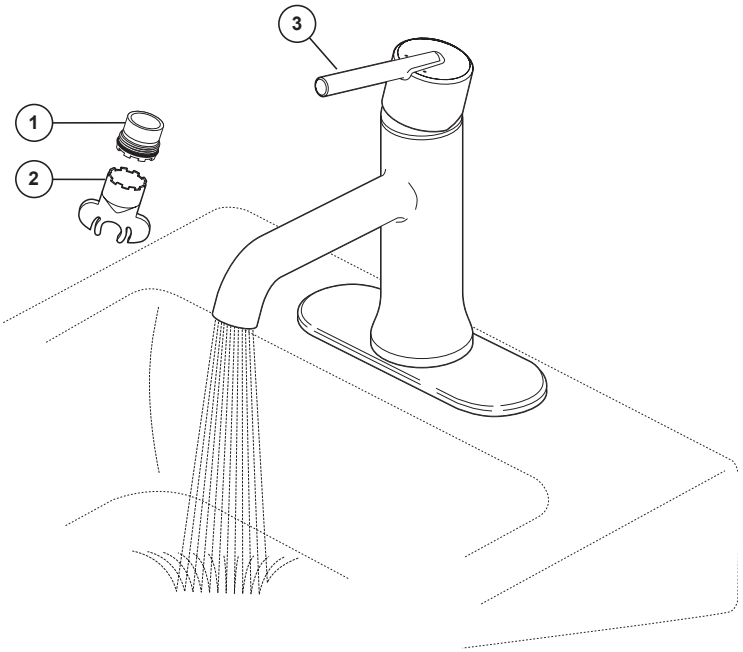
A. Retirez l'obturateur (1) en le tournant de 90 °, puis en le tirant vers le haut. Retirez le joint plat, la garniture d'étanchéité et l'écrou (2) de l'ensemble. Déposez le renvoi (3).

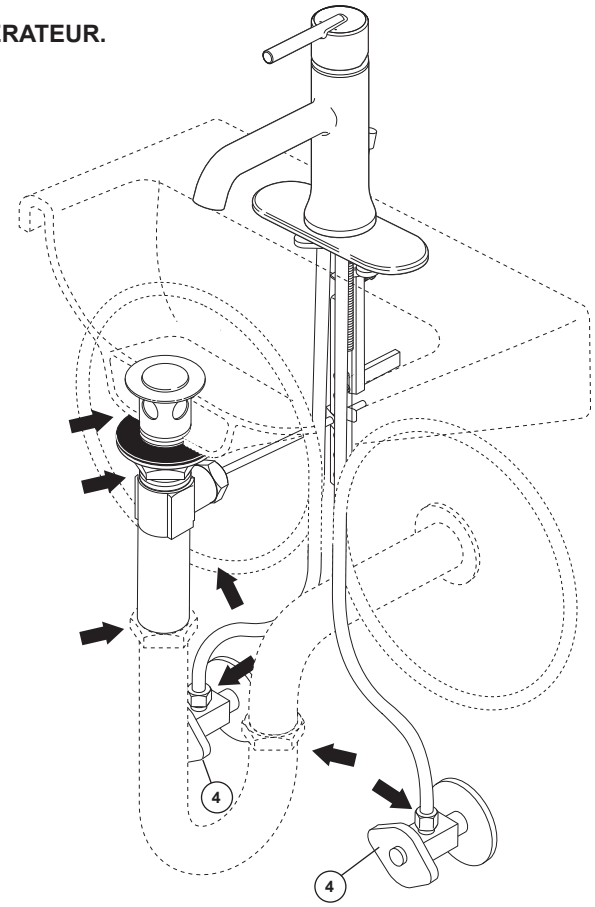
B. Appliquez du composé d'étanchéité à la silicone sous la collerette avant l'installation dans la cuvette. Introduisez le renvoi (3) dans le trou de la cuvette. Introduisez la garni ture d'étanchéité (2) et fixez-la avec l'écrou (2) par-dessous la cuvette. **Note : Assurez-vous de l'orientation correcte du joint (2).** Évitez de tourner le renvoi (3) pendant que vous serrez l'écrou (2), autrement le composé à la silicone pourra ne pas étancher le renvoi. Enlevez le composé d'étanchéité en trop. Enfoncez l'obturateur (1) dans le renvoi (3), puis tournez-le de 90° et tirez-le vers le haut.

C. Raccordez l'ensemble au renvoi

4

FLUSH SYSTEM FOR MODELS WITH AN AERATOR.
SISTEMA DE DESCARGA PARA MODELOS CON AIREADOR.
SYSTÈME DE CHASSE D'EAU POUR LES MODÈLES AVEC AÉRATEUR.





Remove aerator (1) using supplied wrench (2) and turn faucet handle (3) to the full on mixed position. Turn on hot and cold water supplies (4) and flush water lines for one minute. **Important: This flushes away any debris that could cause damage to internal parts.** Reinstall aerator with wrench.
Note: For future use, aerator wrench (2) can be clipped to the supply line after flushing faucet.

Check all connections at arrows for leaks. Retighten if necessary, but do not overtighten.

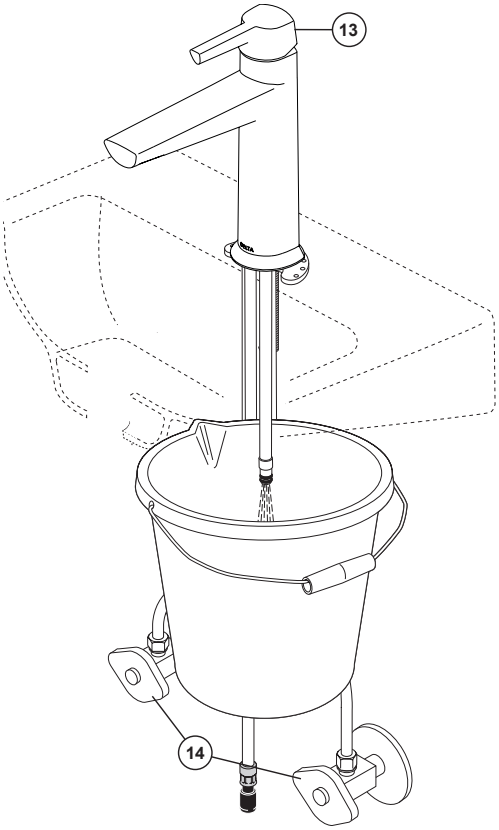
Quite el aereador (1) usando la llave de tuercas (2) proporcionada con su llave de agua y mueva la manija de la llave de agua (3) a la posición completamente abierta. Abra los suministros de agua caliente y fría (4) y deje correr en agua por la líneas por un minuto. **Importante: Esto limpia cualquier escombro que pudiera dañar las partes internas.** Reemplace el aireador usando la llave de tuercas proporcionada. **Nota:** Para el uso futuro, la llave del aereador (2) se puede acortar a la línea de fuente después de limpiar el grifo con un chorro de agua.

Examine todas las conexiones donde señalan las flechas por si hay filtraciones de agua. Apriete de nuevo si es necesario, pero no apriete demasiado.

Retirez l'aérateur (1) en utilisant la clé (2) et placez la poignée (3) du robinet en position d'écoulement maximum de l'eau chaude et de l'eau froide. Rétablissez l'alimentation en eau chaude et en eau froide (4) et laissez couler l'eau pendant une minute. **Important : L'eau qui s'écoule évacue les corps étrangers qui pourraient abîmer les éléments internes.** Remettez l'aérateur en place en utilisant la clé. **Note :** Pour le futur usage, la clé d'aérateur (2) peut être coupée à la canalisation d'alimentation après rinçage du robinet.

Vérifiez l'étanchéité de tous les raccords identifiés par une flèche. Resserrez les raccords au besoin, mais prenez garde de trop les serrer.

5 FLUSH SYSTEM FOR MODELS WITH AN UNDERDECK SWING CLIP. SISTEMA DE ENRASADO PARA MODELOS CON CLIP GIRATORIO BAJO CUBIERTA. SYSTÈME D'AFFLEUREMENT POUR LES MODÈLES AVEC CLIP DE PIVOTEMENT SOUS LE PONT.



Flush Supply Lines

Place a bucket below the outlet fittings and one of options.

1. With the valve in mix open position (13), slowly open and close the supply stops (14).
2. With the supply stops open (14), slowly open and close the handle in the mix position (13).

This will prevent debris from being lodged in the faucet.

Deje correr el agua por las tuberías de suministro

Coloque un balde debajo de los accesorios de salida y una de las opciones.

1. Con la válvula en posición mixta (13), lentamente abra y cierre las llaves de paso (14).
2. Con las llaves de paso abiertas (14), lentamente abra y cierre la manija en la posición mixta (13).

Esto evitará que se alojen residuos en el grifo.

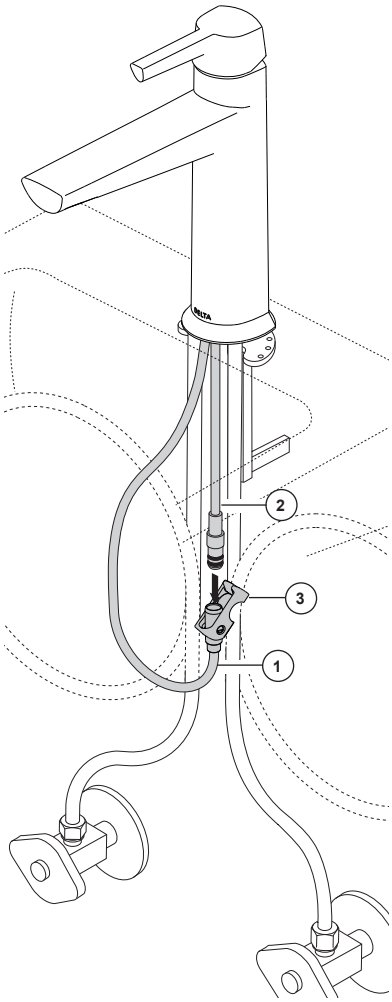
Rincez les tuyaux d'alimentation

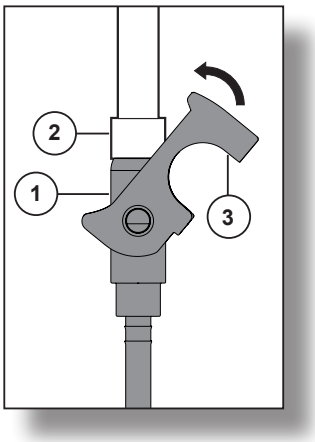
Placez un seau sous les raccords de sortie et l'une des options.

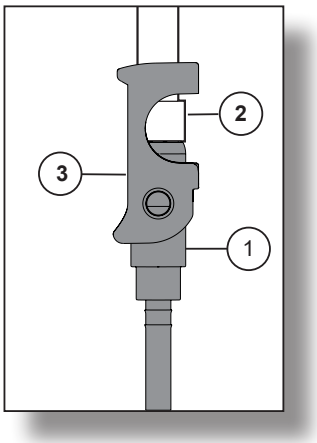
1. Alors que la soupape est en position de mélange (13), ouvrez les robinets d'arrêt lentement (14), puis refermez-les.
2. Alors que les robinets d'arrêt sont ouverts (14), amenez la manette doucement en position de mélange (13), puis ramenez-la en position de fermeture.

Cela empêchera les débris de se loger dans le robinet.

6 FOR MODELS SUPPLIED WITH A SWING CLIP
PARA MODELOS SUMINISTRADOS CON CLIP GIRATORIO
MODÈLES LIVRÉS AVEC UNE AGRAFE





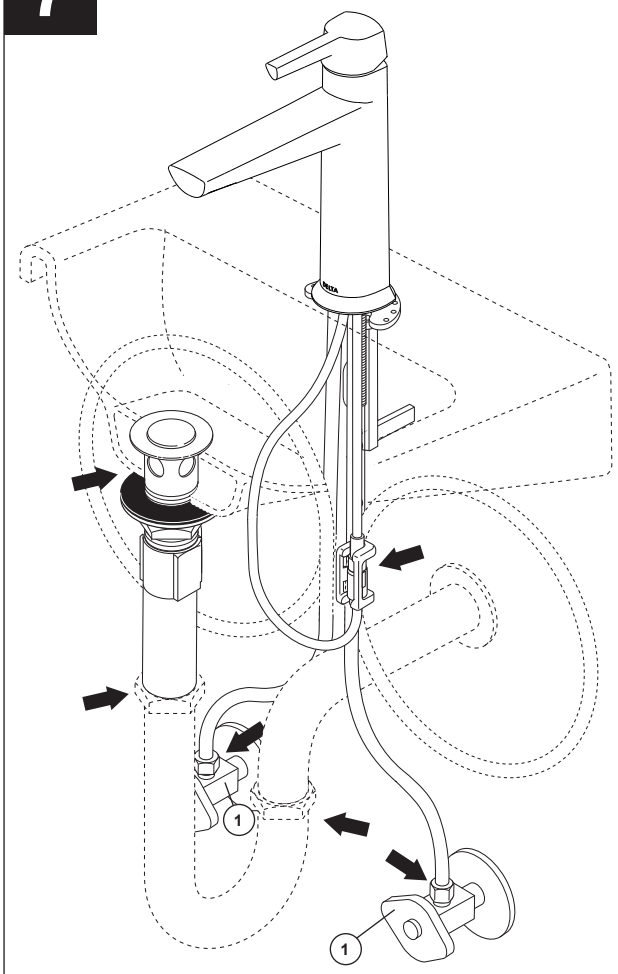


Connect outlet tube (1) to spout tube (2) ensuring a minimum 4” bend diameter. Connect swing clip (3) into place. Pull on tube (1) to ensure it is firmly attached.

Conecte el tubo de salida (1) al tubo del caño (2) asegurando un diámetro mínimo de flexión de 4”. Conecte el clip oscilante (3) en su lugar. Tire del tubo (1) para asegurarse de que está firmemente unido.

Raccordez le tube de sortie (1) au tube de bec (2) en assurant un diamètre de courbure d’au moins 4 po. Raccordez le clip oscillant (3) en place. Tirez sur le tube (1) pour vous assurer qu’il est fermement fixé.

7

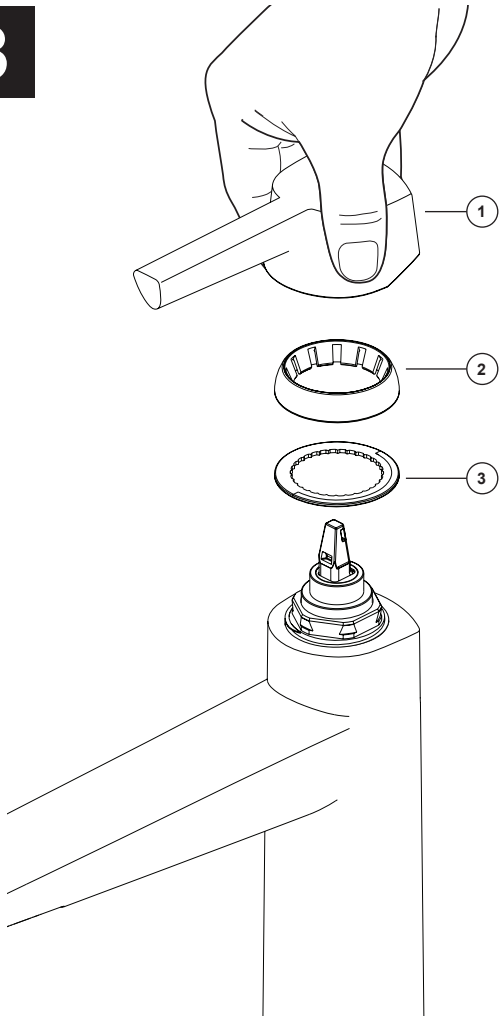


Turn on hot and cold water supplies (1) and check all connections at arrows for leaks. Retighten if necessary, but do not overtighten.

Abra los suministros de agua caliente y fría (1) y examine todas las conexiones donde señalan las flechas por si hay filtraciones de agua. Apriete de nuevo si es necesario, pero no apriete demasiado.

Rétablissez l'alimentation en eau chaude et en eau froide (1) et vérifiez l'étanchéité de tous les raccords identifiés par une flèche. Resserrez les raccords au besoin, mais prenez garde de trop les serrer.

8



Color indicator ring can be installed by following the steps below.

Remove handle (1) and bonnet cap (2) without using tools by pulling straight off. Insert indicator ring (3). Reinstall bonnet cap (2) and handle (1) by snapping them downward.

Caution: Use of tools or removing by prying will damage the faucet.

Puede instalar el aro indicador de color siguiendo los siguientes pasos a continuación.

Retire la manija (1) y la tuerca de cuello (2) sin usar herramientas tirando hacia afuera. Inserte el anillo indicador (3). Vuelva a instalar la tuerca de cuello (2) y la manija (1) encajándolos hacia abajo.

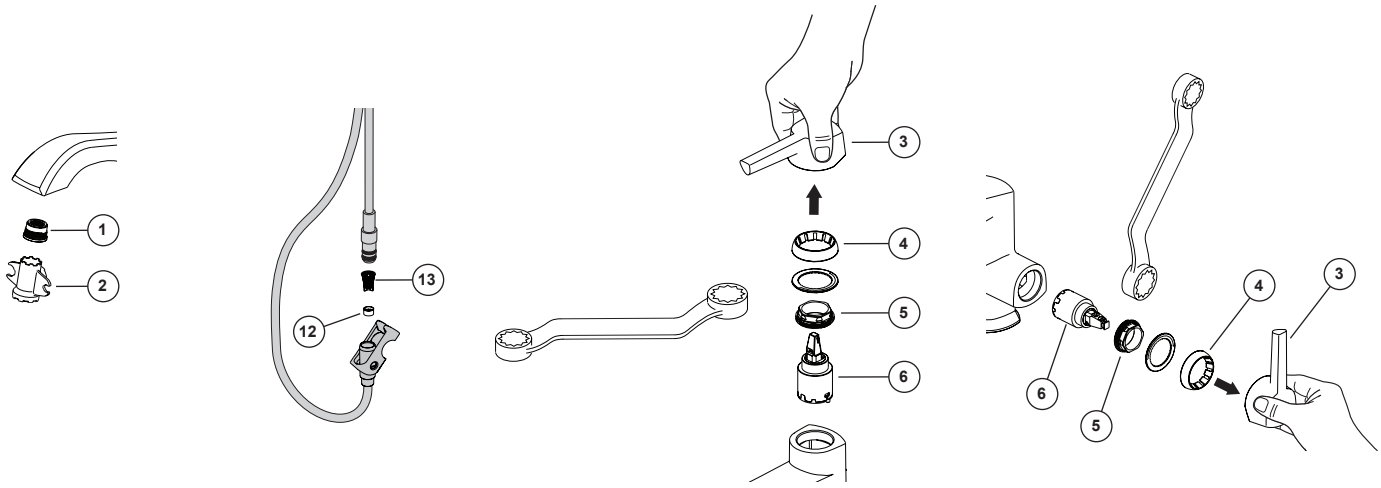
Precaución: El uso de herramientas o la extracción palanqueada dañará el grifo.

L'anneau indicateur de couleur peut être installé de la manière indiquée ci-dessous.

Déposez la manette (1) et le chapeau (2) sans utiliser d'outils en tirant tout droit. Insérez l'anneau indicateur (3). Reposez le chapeau (2) et la manette (1) en exerçant une pression vers le bas sur ceux-ci.

Attention : L'utilisation d'outils ou d'un effet de levier pour la dépose endommagera le robinet.

Maintenance / Mantenimiento / Entretien



If faucet exhibits very low flow:
A. Remove aerator (1) with supplied wrench (2) and clean aerator.
NOTE: Not all models are supplied with wrench & aerator.

- Refer to **STEP 4 or 5** of installation instructions to flush debris at the outlet. Clean and reinstall the flow restrictor (12) and screen (13). Applies only to models supplied with a swing clip connection.

B. SHUT OFF WATER SUPPLIES. Replace valve cartridge (6). When reinstalling parts, make sure bonnet nut (5) is tightened securely **with a wrench.* Do not overtighten bonnet nut (5).**

If faucet leaks from under handle:
Remove handle (3) by pulling straight off. Be careful not to use a tool or other instrument that could damage the handle finish. Remove trim cap (4). Using a wrench ensure bonnet nut (5) is tight*.

If leak persists–SHUT OFF WATER SUPPLIES. Replace valve cartridge (6). When reinstalling parts, make sure bonnet nut (5) is tightened securely with a wrench.*

If faucet leaks from spout outlet–SHUT OFF WATER SUPPLIES. Replace valve cartridge (6). When reinstalling parts, make sure bonnet nut (5) is tightened securely with a wrench.*

*** CAUTION: Securely tighten the bonnet nut (5) using a 7/8" socket or box wrench, being careful to not damage the nut (30-40 in-lbs of torque is all that is required to tighten the nut, which feels like applying 3 lbs of force to a 12" long wrench). Do not use pliers.**

Note: Do not attempt to disassemble cartridge (6). There are no repairable parts inside.

Si la llave de agua presenta un flujo muy bajo:
A. Retire el aireador (1) con la llave inglesa proporcionada (2) y limpie el aireador.
Nota: No todos los modelos incluyen un llave inglesa y un aireador.

- Vea el **PASO 4 o 5** de las instrucciones de instalación para eliminar la suciedad en la salida del tubo. Limpie y vuelva a instalar el limitador de flujo (12) y la rejilla (13). Se aplica solo a los modelos suministrados con una conexión de clip giratorio.

B. CIERRE LOS SUMINISTROS DE AGUA. Reemplace el cartucho de la válvula (6). Al reinstalar las piezas, asegúrese de que la tuerca tapa (5) esté bien apretada **usando una llave. * No apriete la tuerca tapa (5) demasiado.**

Retire la manija (3) halando hacia tirando hacia afuera. Tenga cuidado de no utilizar una herramienta u otro instrumento que pueda dañar el acabado de la manija. Retire la tapa de guarnición (4). Con una llave, asegúrese de que la tuerca tapa (5) esté apretada *.

Si la fuga persiste–CIERRE EL SUMINISTRO DE AGUA. Reemplace la válvula de cartucho (6). Al reinstalar piezas, asegúrese con una llave inglesa que la tuerca tapa (5) esté bien apretada. *

Si la llave de agua gotea de la salida del surtidor–CIERRE LOS SUMINISTROS DE AGUA. Reemplace la válvula de cartucho (6). Al reinstalar las piezas, asegúrese con una llave inglesa que la tuerca tapa (5) esté bien apretada. *

*** AVISO: Apriete firmemente la tuerca del bonete (5) con una llave de tubo o de caja de 7/8 ", teniendo cuidado de no dañar la tuerca (30-40 po. -lbs de torque es todo lo que se requiere para apretar la tuerca, que se siente como aplicar 3 lbs de fuerza a una llave de 12 "de largo). No utilice pinzas.**

Nota: No intente desmontar el cartucho (6). No hay piezas reparables en el interior.

Si la llave de agua gotea por debajo de la manija:

Si le débit du robinet est très faible :
A. Enlevez l'aérateur (1) avec la clé fournie (2) et nettoyez l'aérateur.
NOTE : Les modèles ne sont pas tous livrés avec une clé et un aérateur.

- Consultez **l'ÉTAPE 4 ou 5** des instructions d'installation pour évacuer les corps étrangers par la sortie. Nettoyez le limiteur de débit (12) et le filtre en toile métallique (13), puis reposez-les. Ces instructions s'appliquent uniquement aux modèles muni d'un raccord agrafé.

B. FERMEZ LES ROBINETS D'ALIMENTATION. Remplacez la cartouche de soupape (6). Lorsque vous réinstallez les pièces, prenez soin de bien serrer l'écrou-chapeau (5) **avec une clé.* Évitez de serrer l'écrou-chapeau (5) excessivement.**

Si le robinet fuit sous la manette :
Déposez la manette (3) en la tirant tout droit. Évitez d'utiliser un outil ou un autre instrument qui pourrait abîmer le fini de la manette. Enlevez le capuchon de finition (4). À l'aide d'une clé, assurez-vous que l'écrou-chapeau (5) est serré*.

Si la fuite persiste – FERMEZ LES ROBINETS D'ALIMENTATION. Remplacez la cartouche de soupape (6). Lorsque vous réinstallez les pièces, assurez-vous que l'écrou-chapeau (5) est bien serré avec une clé.*

Si le robinet fuit par le bec –FERMEZ LES ROBINETS D'ALIMENTATION. Remplacez la cartouche de soupape (6). Lorsque vous réinstallez les pièces, assurez-vous que l'écrou-chapeau (5) est bien serré avec une clé.*

*** ATTENTION :Serrez fermement l'écrou de chapeau (5) à l'aide d'une clé à douille de 7/8 po ou d'une clé polygonale, en prenant soin de ne pas endommager l'écrou (30-40 po -lbs de couple est tout ce qui est nécessaire pour serrer l'écrou, ce qui donne l'impression d'appliquer une force de 3 lb à une clé longue de 12 pouces). N'utilisez pas de pinces.**

Note : Ne tentez pas de démonter la cartouche (6). Elle ne renferme pas de pièces réparables.

Limited Warranty on Delta® Faucets

Parts and Finish: All parts (other than electronic parts and batteries) and finishes of Delta® faucets purchased from authorized Delta sellers are warranted to the original consumer purchaser to be free from defects in material and workmanship for as long as the original consumer purchaser owns the home in which the faucet was first installed. For commercial purchasers, (a) the warranty period is ten (10) years for multi-family residential applications and (b) five (5) years for all other commercial applications, in each case from the date that the product is received by the original purchaser or their authorized representative (installation contractor, etc.). For purposes of this warranty, the term "multi-family residential application" refers to the purchase of the faucet from an authorized Delta seller by a purchaser who owns but does not live in the residential dwelling in which the faucet is initially installed, such as in a rented or leased single unit or multi-unit detached home (duplex or townhome), or a condominium, apartment building or community living center. The following installations are not considered multi-family residential applications, are excluded from the 10-year warranty and are subject to the 5-year warranty: industrial, institutional or other business premises, such as a dormitory, hospitality premises (hotel, motel or extended stay location), airport, educational facility, long- or short-term healthcare facility (hospital, rehabilitation center, nursing, assisted or staged-care living unit), public space or common area.

Parts and Finish for Delta® Recertified Faucets: Delta Faucet Company offers for sale online Delta® Recertified faucets. Delta® Recertified faucets only include faucets that have been certified as such by Delta Faucet Company. All parts (other than electronic parts and batteries) and finishes of these Delta® Recertified faucets are warranted to the original consumer purchaser to be free from defects in material and workmanship for ten (10) years from the date that the product is received by the original purchaser or their authorized representative (installation contractor, etc.). For commercial purchasers, the warranty period is one (1) year from the date that the product is received by the original purchaser or their authorized representative (installation contractor, etc.).

Electronic Parts: Electronic parts (other than batteries), if any, of Delta® faucets purchased from deltafaucet.com or authorized Delta sellers are warranted to the original consumer purchaser to be free from defects in material and workmanship for five (5) years from the date that the product is received by the original purchaser or their authorized representative (installation contractor, etc.) or, for commercial purchasers, for one (1) year from the date that the product is received by the original purchaser or their authorized representative (installation contractor, etc.). No warranty is provided on batteries.

What We Will Do: Delta Faucet Company will repair or replace, free of charge, during the applicable warranty period (as described above), any part or finish that proves defective in material and/or workmanship under normal installation, use and service. Delta Faucet Company may, in its sole discretion, use new, refurbished or recertified parts or products for such repair or replacement. If repair or replacement is not practical, Delta Faucet Company may elect to refund the purchase price in exchange for the return of the product. **These are your exclusive remedies.**

What Is Not Covered: Because Delta Faucet Company is unable to control the quality of Delta products sold by unauthorized sellers, unless otherwise prohibited by law, this warranty does not cover Delta products purchased from unauthorized sellers.
Any labor charges incurred by the purchaser to repair, replace, install or remove this product are not covered by this warranty. Delta Faucet Company shall not be liable for any damage to the faucet resulting from reasonable wear and tear, outdoor use, misuse (including use of the product for an unintended application), freezing water, abuse, neglect or improper or incorrectly performed installation, maintenance or repair, including failure to follow the applicable care and cleaning instructions. Delta Faucet Company recommends using a professional plumber for all installation and repair of faucets. We also recommend that you use only genuine Delta® replacement parts.

What You Must Do To Obtain Warranty Service or Replacement Parts: A warranty claim may be made and replacement parts may be obtained by calling 1 800 345 DELTA (3358) or by contacting us by mail or online as follows (please include your model number, date of original purchase and documentation of the date of receipt of the product by the original purchaser or their authorized representative (installation contractor, etc.)):

In the United States and Mexico:
Delta Faucet Company
55 E. 111th Street
Indianapolis, IN 46280
Attention: Warranty Service
www.deltafaucet.com/service-parts/contact-us

In Canada:
Masco Canada Limited, Plumbing Group
Technical Service Centre
350 South Edgeware Road
St. Thomas, Ontario, Canada N5P 4L1
Attention: Customer Service
http://www.deltafaucet.ca/customersupport/assistance.html

Proof of purchase (original sales receipt showing purchase date) and documentation of the date of receipt of the product by the original purchaser or their authorized representative (installation contractor, etc.) from the original purchaser must be made available to Delta Faucet Company for all warranty claims unless the purchaser has registered the product with Delta Faucet Company or the product is a Delta® Recertified product purchased from deltafaucet.com. This warranty applies only to Delta® faucets manufactured after January 1, 2019 and installed in the United States of America, Canada and Mexico.

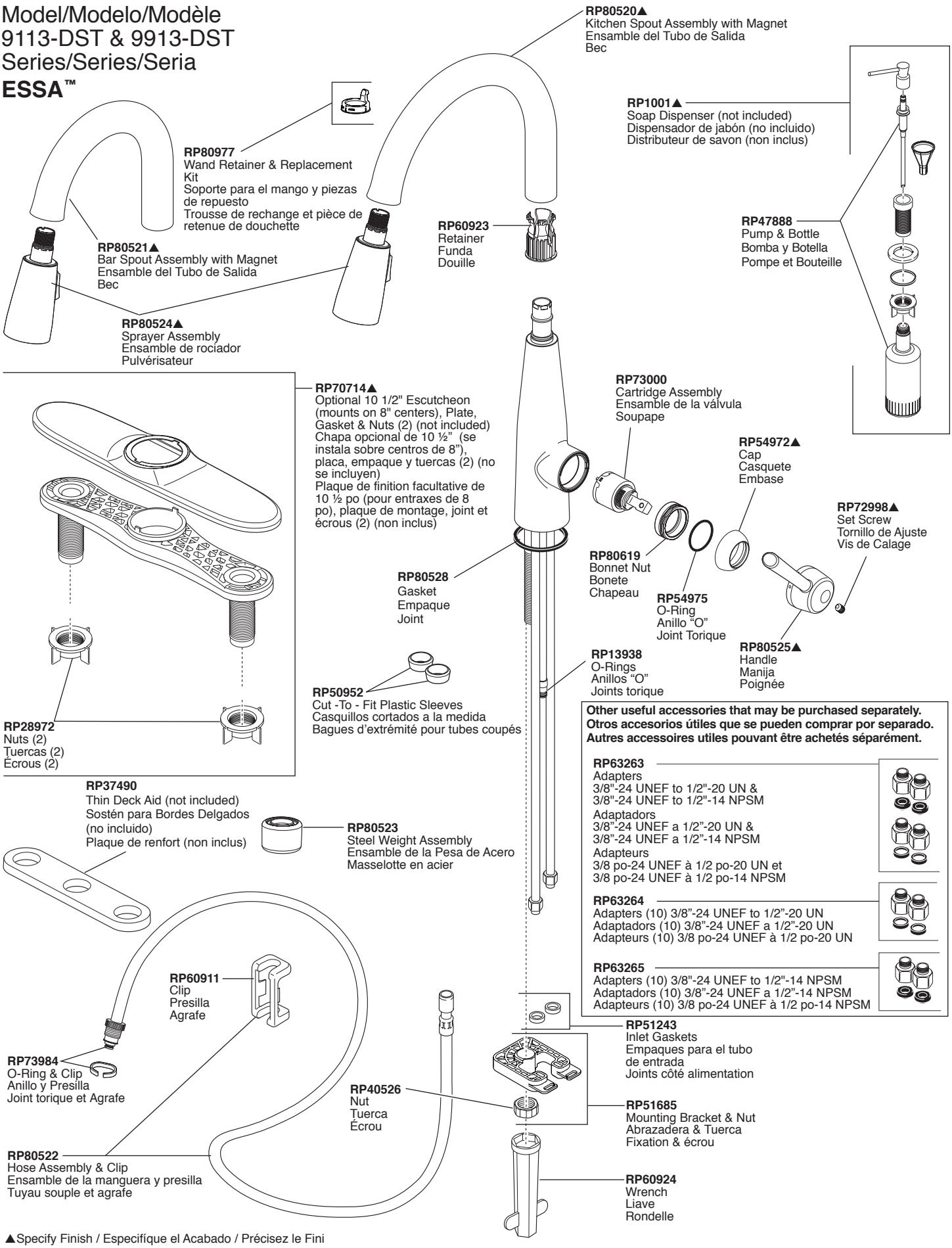
Limitation on Duration of Implied Warranties: Please note that some states/provinces (including Quebec) do not allow limitations on how long an implied warranty lasts, so the below limitations may not apply to you. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, ANY IMPLIED WARRANTY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, IS LIMITED TO THE STATUTORY PERIOD OR THE DURATION OF THIS WARRANTY, WHICHEVER IS SHORTER.

Limitation of Special, Incidental or Consequential Damages: Please note that some states/provinces (including Quebec) do not allow the exclusion or limitation of special, incidental or consequential damages, so the below limitations and exclusions may not apply to you. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THIS WARRANTY DOES NOT COVER, AND DELTA FAUCET COMPANY SHALL NOT BE LIABLE FOR, ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LABOR CHARGES TO REPAIR, REPLACE, INSTALL OR REMOVE THIS PRODUCT), WHETHER ARISING OUT OF BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, BREACH OF CONTRACT, TORT, OR OTHERWISE. DELTA FAUCET COMPANY SHALL NOT BE LIABLE FOR ANY DAMAGE TO THE FAUCET RESULTING FROM REASONABLE WEAR AND TEAR, OUTDOOR USE, MISUSE (INCLUDING USE OF THE PRODUCT FOR AN UNINTENDED APPLICATION), FREEZING WATER, ABUSE, NEGLECT OR IMPROPER OR INCORRECTLY PERFORMED INSTALLATION, MAINTENANCE OR REPAIR, INCLUDING FAILURE TO FOLLOW THE APPLICABLE INSTALLATION, CARE AND CLEANING INSTRUCTIONS. Notice to residents of the State of New Jersey: The provisions of this warranty, including its limitations, are intended to apply to the fullest extent permitted by the laws of the State of New Jersey.

Additional Rights: This warranty gives you specific legal rights, and you may also have other rights which vary from state/province to state/province.
This is Delta Faucet Company's exclusive written warranty and the warranty is not transferable.

If you have any questions or concerns regarding our warranty, please contact us as provided above or view our Warranty FAQs at www.deltafaucet.com.

Model/Modelo/Modèle
9113-DST & 9913-DST
Series/Series/Seria
ESSA™



▲Specify Finish / Especifíque el Acabado / Précisez le Fini

DELTA

90617

HIGH-RISE PULL-DOWN KITCHEN AND BAR / PREP FAUCETS

LLAVES DE AGUA ELEVADAS, DESLIZABLES HACIA ABAJO, PARA COCINAS Y BARES / PREP

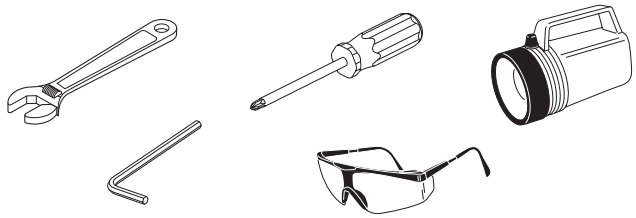
ROBINET À COL DE CYGNE ET BEC-DOUCHETTE POUR ÉVIER DE BAR OU D'ÎLOT DE CUISINE

Model #:_____
Date Manufactured:_____
Date Purchased:_____
Date Installed:_____

Modelo:_____
Fecha de fabricación:_____
Fecha de compra:_____
Fecha de instalación:_____

No de modèle:_____
Date de fabrication:_____
Date d'achat:_____
Date d'installation:_____

You may need/Usted puede necesitar/ Articles dont vous pouvez avoir besoin:



WARNING: THIS FAUCET IS NOT TO BE USED WITH PORTABLE DISHWASHERS! / ADVERTENCIA: ¡SESTA LLAVE NO SE DEBE UTILIZAR CON MAQUINAS LAVAPLATOS PORTATILES! / **AVERTISSEMENT:** ON NE DOIT PAS BRANCHER UN LAVE-VAISSELE PORTATIF SUR CE ROBINET!

For easy installation of your Delta® faucet you will need:

- To **READ ALL** the instructions completely before beginning.
- To **READ ALL** warnings, care, and maintenance information.

Para instalación fácil de su llave Delta® usted necesitará:

- **LEER TODAS** las instrucciones completamente antes de empezar.
- **LEER TODOS** los avisos, cuidados, e información de mantenimiento.

Pour installer votre robinet Delta® facilement, vous devez:

- **LIRE TOUTES** les instructions avant de débuter;
- **LIRE TOUS** les avertissements ainsi que toutes les instructions de nettoyage et d'entretien;

Notice

Property damage assured. Water leak certain. Ball nose risers will void product warranty and will cause property damage.

Property damage and water leak possible. Use manufacturers supplied hoses provided with this faucet. Follow instructions to install hoses. Incorrectly installed or unapproved hoses void warranty.

Property damage and water leak possible. Incorrectly installed or unapproved clip and hose may cause water leaks and property damage. Follow instructions to install hose and clip provided with this faucet.

Property damage and water leak possible. Leaks and property damage may occur from incorrect installation. Follow all installation instructions before making final connections and turning on the supplies.

Aviso

Asegurado contra daños a la propiedad. Protección segura contra filtraciones. Tubos montantes o verticales de bola anularán la garantía del producto y pueden causar daños a la propiedad.

Posibles daños a la propiedad y filtración de agua. Utilice las mangueras de los fabricantes incluidas con esta llave de agua - grifo. Siga las instrucciones para instalar las mangueras. Una instalación incorrecta o mangueras que no son aprobadas anularán la garantía.

Un gancho o manguera incorrectamente instalado o no autorizado puede causar fugas o filtraciones de agua y daños a la propiedad. Siga las instrucciones para instalar la manguera y el gancho incluidos con esta llave de agua - grifo.

Posibles daños a la propiedad y filtración de agua. Las filtraciones o fugas de agua y daños a la propiedad pueden ocurrir por una instalación incorrecta. Siga todas las instrucciones de instalación antes de hacer las conexiones finales y abrir los suministros de agua.

Avis

Fuite et dommages matériels à coup sûr. L'utilisation de tubes-raccords à nez arrondi entraînera l'annulation de la garantie et des dommages matériels.

Possibilité de dommages matériels et de fuite. Utilisez les tuyaux souples fournis par le fabricant avec ce robinet. Installez les tuyaux souples conformément aux instructions. La garantie est nulle et sans effet en cas d'installation incorrecte des tuyaux ou d'installation de tuyaux non approuvés.

Possibilité de dommages matériels et de fuite. Une mauvaise installation du tuyau souple et de l'agrafe peut entraîner une fuite et des dommages matériels. Installez le tuyau souple et l'agrafe fournis avec de robinet conformément aux instructions.

Possibilité de dommages matériels et de fuite. Une mauvaise installation peut entraîner une fuite et des dommages matériels. Effectuez l'installation conformément à toutes les instructions avant de faire les branchements finals et d'ouvrir les robinets d'alimentation.

90617

Cleaning and Care

Care should be given to the cleaning of this product. Although its finish is extremely durable, it can be damaged by harsh abrasives or polish. To clean, simply wipe gently with a damp cloth and blot dry with a soft towel.

Backflow Protection System

Your Delta Faucet pull-out spout incorporates a backflow protection system that has been tested to be in compliance with ASME A112.18.3 and ASME A112.18.1 / CSA B125.1. It incorporates two certified check valves in series, which operate independently and are integral, non-serviceable parts of the wand assembly.

Limited Warranty on Delta® Faucets

Parts and Finish
All parts (other than electronic parts and batteries) and finishes of this Delta® faucet are warranted to the original consumer purchaser to be free from defects in material and workmanship for as long as the original consumer purchaser owns the home in which the faucet was first installed or, for commercial users, for 5 years from the date of purchase.

Electronic Parts and Batteries (if applicable)
Electronic parts (other than batteries), if any, of this Delta® faucet are warranted to the original consumer purchaser to be free from defects in material and workmanship for 5 years from the date of purchase or, for commercial users, for one year from the date of purchase. No warranty is provided on batteries.

Delta Faucet Company will replace, FREE OF CHARGE, during the applicable warranty period, any part or finish that proves defective in material and/or workmanship under normal installation, use and service. If repair or replacement is not practical, Delta Faucet Company may elect to refund the purchase price in exchange for the return of the product. **These are your exclusive remedies.**

Delta Faucet Company recommends using a professional plumber for all installation and repair. We also recommend that you use only genuine Delta® replacement parts.

Delta Faucet Company shall not be liable for any damage to the faucet resulting from misuse, abuse, neglect or improper or incorrectly performed installation, maintenance or repair, including failure to follow the applicable care and cleaning instructions.

Replacement parts may be obtained by calling the applicable number below or by writing to:

In the United States and Mexico:
Delta Faucet Company
Product Service
55 E. 111th Street
Indianapolis, IN 46280
1-800-345-DELTA (3358)
customerservice@deltafaucet.com

In Canada:
Masco Canada Limited, Plumbing Group
Technical Service Centre
350 South Edgeware Road
St. Thomas, Ontario, Canada N5P 4L1
1-800-345-DELTA (3358)
customerservice@mascocanada.com

Proof of purchase (original sales receipt) from the original purchaser must be made available to Delta Faucet Company for all warranty claims unless the purchaser has registered the product with Delta Faucet Company. This warranty applies only to Delta® faucets manufactured after January 1, 1995 and installed in the United States of America, Canada and Mexico.

DELTA FAUCET COMPANY SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LABOR CHARGES) FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THE FAUCET. Some states/provinces do not allow the exclusion or limitation of special, incidental or consequential damages, so these limitations and exclusions may not apply to you. This warranty gives you special legal rights. You may also have other rights which vary from state/province to state/province.

This is Delta Faucet Company's exclusive written warranty and the warranty is not transferable.

If you have any questions or concerns regarding our warranty, please view our Warranty FAQs at www.deltafaucet.com, email us at customerservice@deltafaucet.com or call us at the applicable number above.

Limpieza y Cuidado de su Llave

Tenga cuidado al ir a limpiar este producto. Aunque su acabado es sumamente durable, puede ser afectado por agentes de limpieza o para pulir abrasivos. Para limpiar su llave, simplemente frótela con un trapo húmedo y luego séquela con una toalla suave.

Sistema de protección contra el contraflujo

Su llave de agua tipo deslizable Delta tiene un sistema de protección contra el contraflujo, incorporado, que ha sido probado para cumplir con los requisitos de ASME A112.18.3 y ASME A112.18.1 / CSA B125.1. Este incorpora en la pieza de mano dos válvulas de retención o checadoras certificadas en una serie, las cuales operan independientemente y son piezas integrantes que no requieren servicio.

Garantía Limitada de las Llaves de Agua (grifos) Delta®

Piezas y acabado
Todas las piezas (excepto las piezas electrónicas y las pilas) y los acabados de esta llave de agua Delta® están garantizados al consumidor comprador original de estar libres de defectos en material y fabricación durante el tiempo que el comprador original posea la vivienda en la que la llave de agua fue originalmente instalada o, para los consumidores comerciales, durante 5 años a partir de la fecha de compra.

Componentes electrónicos y pilas (si aplicable)
Todas las piezas (salvo las pilas), si hay, de esta llave de agua Delta® están garantizadas al consumidor comprador original de estar libres de defectos en materiales y fabricación durante 5 años a partir de la fecha de compra o, para los usuarios comerciales, por un año a partir de la fecha de compra. No se garantizan las pilas.

Delta Faucet Company reemplazará, SIN CARGO, durante el período de garantía aplicable, cualquier pieza o acabado que pruebe tener defectos de material y/o fabricación bajo la instalación, uso y servicio normal. Si la reparación o su reemplazo no es práctico, Delta Faucet Company tiene la opción de reembolsarle su dinero por la cantidad del precio de compra a cambio de la devolución del producto. **Estos son sus únicos recursos.**

Delta Faucet Company recomienda que use los servicios de un plomero profesional para todas las instalaciones y reparaciones. También le recomendamos que utilice sólo las piezas de repuesto originales de Delta®.

Delta Faucet Company no será responsable por cualquier daño a la llave de agua que resulte del mal uso, abuso, negligencia o mala instalación o mantenimiento o reparación incorrecta, incluyendo el no seguir los cuidados aplicables y las instrucciones de limpieza.

Las piezas de repuesto se pueden obtener llamando al número correspondiente más abajo, o escribiendo a:

En los Estados Unidos y México:
Delta Faucet Company
Product Service
55 E. 111th Street
Indianapolis, IN 46280
1 800 345 DELTA (3358)
customerservice@deltafaucet.com

En Canadá:
Masco Canada Limited, Plumbing Group
Technical Service Centre
350 South Edgeware Road
St. Thomas, Ontario, Canada N5P 4L1
1 800 345 DELTA (3358)
customerservice@mascocanada.com

La prueba de compra (recibo original) del comprador original debe ser disponible a Delta Faucet Company para todos los reclamos a menos que el comprador haya registrado el producto con Delta Faucet Company. Esta garantía le aplica sólo a las llaves de agua de Delta® fabricadas después del 1 de enero 1995 e instaladas en los Estados Unidos de América, Canadá y México.

DELTA FAUCET COMPANY NO SE HACE RESPONSABLE POR CUALQUIER DAÑO ESPECIAL, INCIDENTAL O CONSECUENTE (INCLUYENDO LOS GASTOS DE MANO DE OBRA) POR EL INCUMPLIMIENTO DE CUALQUIER GARANTÍA EXPRESA O IMPLÍCITA DE LA LLAVE DE AGUA. Algunos estados/provincias no permiten la exclusión o limitación de daños especiales, incidentales o consecuentes, por lo que estas limitaciones y exclusiones pueden no aplicarle a usted. Esta garantía le otorga derechos legales. Usted también puede tener otros derechos que varían de estado/provincia a estado/provincia.

Esta es la garantía exclusiva por escrito de Delta Faucet Company y la garantía no es transferible.

Si usted tiene alguna pregunta o inquietud acerca de nuestra garantía, por favor, vea nuestra sección de preguntas frecuentes FAQ sobre la garantía en www.deltafaucet.com, también puede enviarnos un correo electrónico a customerservice@deltafaucet.com o llámenos al número que le corresponda anteriormente incluido.

Instructions de nettoyage

Il faut le nettoyer avec soin. Même si son fini est extrêmement durable, il peut être abîmé par des produits fortement abrasifs ou des produits de polissage. Il faut simplement le frotter doucement avec un chiffon humide et le sécher à l'aide d'un chiffon doux.

Dispositif anti-siphonnage

Le bec rétractable de votre robinet Delta comporte un dispositif anti-siphonnage qui a été éprouvé et qui est conforme aux normes ASME A112.18.3 et ASME A112.18.1 / CSA B125.1. Ce dispositif se compose de deux clapets indépendants homologués, montés en série dans le tube rigide, qui sont non réparables.

Garantie limitée des robinets Delta®

Pièces et finis
Toutes les pièces (à l'exception des composants électroniques et des piles) et tous les finis de ce robinet Delta® sont protégés contre les défectuosités du matériau et les vices de fabrication par une garantie qui est consentie au premier acheteur et qui demeure valide tant que celui-ci demeure propriétaire de la maison dans laquelle le robinet a été installé. Dans le cas d'une utilisation commerciale, la garantie est de 5 ans à compter de la date d'achat.

Composants électroniques et piles (le cas échéant)
Si ce robinet Delta® comporte des composants électroniques, ces composants (à l'exception des piles) sont protégés contre les défectuosités du matériau et les vices de fabrication par une garantie consentie au premier acheteur qui est d'une durée de 5 ans à compter de la date d'achat. Dans le cas d'une utilisation commerciale, la garantie est d'un an à compter de la date d'achat. Aucune garantie ne couvre les piles.

Delta Faucet Company remplacera, GRATUITEMENT, pendant la période de garantie applicable, toute pièce ou tout fini qui présentera une défectuosité du matériau et/ou un vice de fabrication pour autant que le robinet ait été installé, utilisé et entretenu normalement. S'il est impossible de réparer ou de remplacer le robinet, Delta Faucet Company pourra décider de rembourser le prix d'achat du produit pour autant que celui-ci lui soit retourné. **Il s'agit de vos seuls recours.**

Delta Faucet Company recommande de confier l'installation et la réparation à un plombier professionnel. Nous vous recommandons également d'utiliser uniquement des pièces de rechange authentiques Delta®.

Delta Faucet Company se dégage de toute responsabilité à l'égard des dommages causés au robinet en raison d'un mauvais usage, d'un usage abusif, de la négligence ou de l'utilisation d'une méthode d'installation, de maintenance ou de réparation incorrecte ou inadéquate, y compris les dommages résultant du non-respect des instructions de nettoyage et d'entretien applicables.

Pour obtenir des pièces de rechange, veuillez appeler au numéro applicable ci-dessous ou écrire à l'adresse applicable ci-dessous.

Aux États-Unis et au Mexique :
Delta Faucet Company
Product Service
55 E. 111th Street
Indianapolis, IN 46280
1-800-345-DELTA (3358)
customerservice@deltafaucet.com

Au Canada:
Masco Canada Limited, Plumbing Group
Technical Service Centre
350 South Edgeware Road
St. Thomas, Ontario, Canada N5P 4L1
1-800-345-DELTA (3358)
customerservice@mascocanada.com

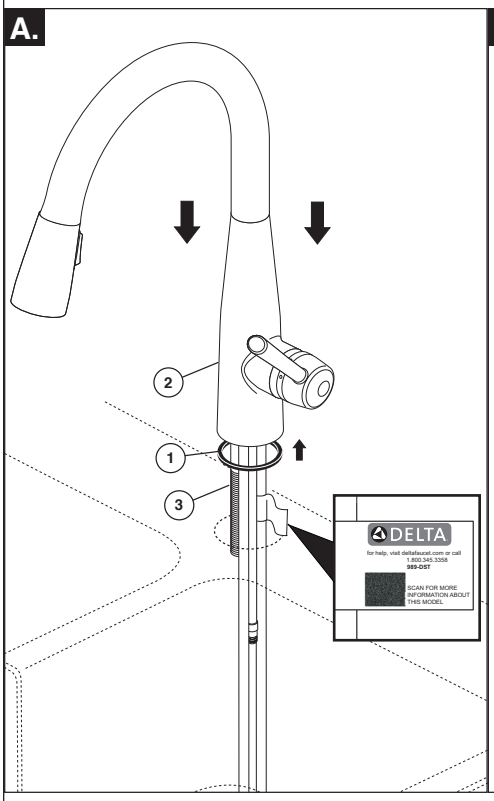
La preuve d'achat (reçu original) du premier acheteur doit être présentée à Delta Faucet Company pour toutes les demandes en vertu de la garantie, sauf si le produit a été enregistré auprès de Delta Faucet Company. La présente garantie s'applique uniquement aux robinets Delta® fabriqués après le 1er janvier 1995 et installés aux États-Unis d'Amérique, au Canada et au Mexique.

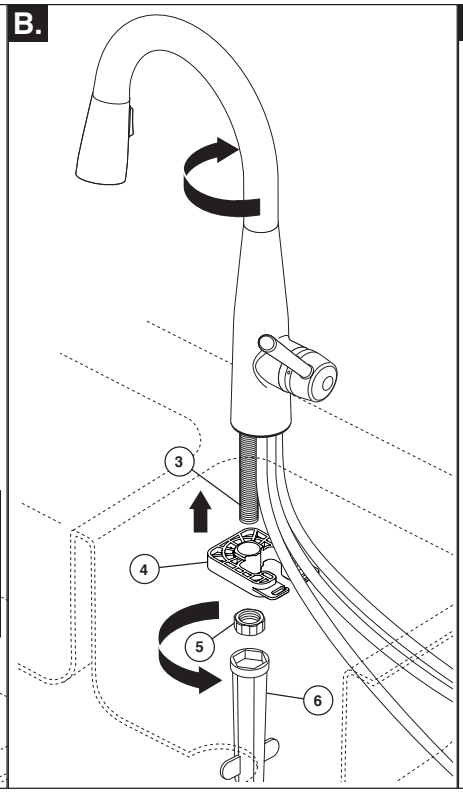
DELTA FAUCET COMPANY SE DÉGAGE DE TOUTE RESPONSABILITÉ À L'ÉGARD DES DOMMAGES PARTICULIERS, CONSÉCUTIFS OU INDIRECTS (Y COMPRIS LES FRAIS DE MAIN-D'OEUVRE) QUI POURRAIENT RÉSULTER DE LA VIOLATION D'UNE GARANTIE IMPLICITE OU EXPLICITE QUELCONQUE SUR LE ROBINET. Dans les États ou les provinces où il est interdit de limiter ou d'exclure la responsabilité à l'égard des dommages particuliers, consécutifs ou indirects, les limites et les exclusions susmentionnées ne s'appliquent pas. La présente garantie vous donne des droits précis qui peuvent varier selon l'État ou la province où vous résidez.

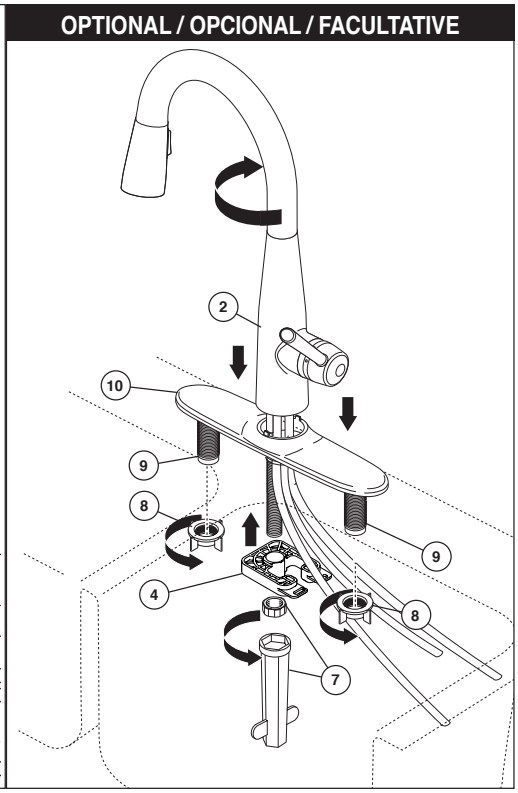
La présente garantie écrite est la garantie exclusive offerte par Delta Faucet Company et elle n'est pas transférable.

Si vous avez des questions ou des préoccupations en ce qui concerne notre garantie, veuillez consulter la page Warranty FAQs à www.deltafaucet.com, faire parvenir un courriel à customerservice@deltafaucet.com ou nous appeler au numéro applicable.

1







Mount Faucet to Deck

Before installing, aquire information from label on tubes and add to front of sheet of instructions for future use.

A. Add trim ring if applicable. Place gasket (1) into groove on bottom of faucet (2). Insert faucet tubes and mounting shank (3) through mounting hole.

B. Install mounting bracket (4) and nut (5) onto the mounting shank (3) using wrench (6).

Instale la llave de agua/grifo en la encimera

Antes de instalar, obtenga la información de la etiqueta de los tubos e inclúyala en la parte delantera de la hoja de instrucciones para uso futuro.

A. Adhiera el anillo de ajuste si es aplicable. Coloque el empaque (1) en la ranura en la parte inferior de la llave de agua/grifo (2). Inserte los tubos del grifo y la espiga de instalación (3) a través del agujero de montaje.

B. Instale el soporte de montaje (4) y la tuerca (5) en la espiga de montaje (3) con la llave de tuercas (6).

Montage robinet pour le pont

Avant de procéder à l'installation, prenez connaissance de l'information qui figure sur l'étiquette fixée aux tubes et ajoutez-la sur la feuille d'instructions pour consultation.

A. Ajoutez l'anneau de finition, le cas échéant. Placez le joint (1) dans la rainure en dessous du robinet (2). Introduisez les tubes et la tige de montage (3) du robinet dans le trou de montage.

B. Montez le support de montage (4) et l'écrou (5) sur le manchon fileté à l'aide de la clé (6).

Optional Escutcheon Installation

Not included with all models - To order see replacement parts page for your model. For installations using the 10" escutcheon, be certain and use the 10" escutcheon (10). Assemble under cover plate and escutcheon in place of single hole trim ring. place the shanks (9) of the escutcheon/under cover plate assembly into the mounting of the sink. Slide the tubes and shank of the faucet (2) through the escutcheon and mounting holes, then install faucet onto escutcheon. Ensure that tabs on escutcheon and plate are properly located in slots in bottom of faucet. Mount as shown above using the nuts (8), bracket (4) and nut with wrench (7).

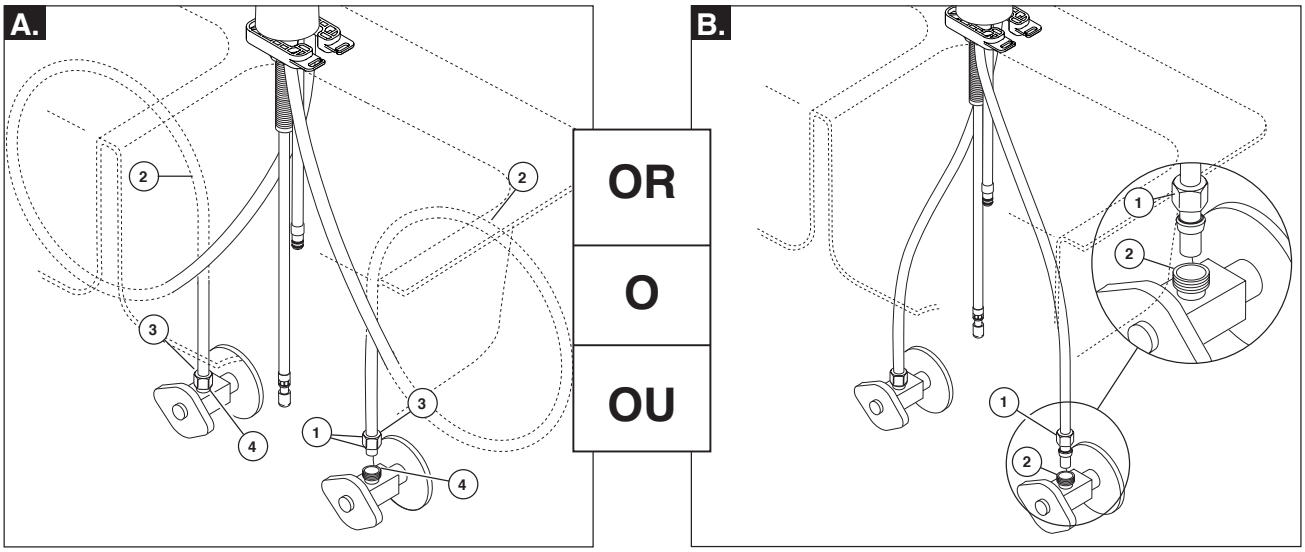
Instalación opcional de la chapa

No se incluye con todos los modelos - Para ordenar, vea la página de las piezas de repuesto de su modelo. Para las instalaciones que utilizan la chapa de 10", asegúrese y use la chapa de 10" (10). Ensamble usando la placa debajo de la cubierta y la chapa en lugar de un aro de ajuste para un agujero. Coloque las espigas (9) de la chapa/placa debajo de la cubierta en el montaje del fregadero. Deslice los tubos y la espiga de la llave de agua/grifo (2) a través de la chapa/chapetón y los agujeros de montaje, luego, instale el grifo en la chapa. Asegúrese de que las lengüetas en la chapa y la placa están correctamente situadas en las ranuras en la parte inferior del grifo. Monte como se muestra arriba, con las tuercas (8), el soporte (4) y la tuerca con la llave de tuercas (7).

Installation avec la plaque de finition facultative

Non incluse avec certains modèles - Pour commander, allez à la page des pièces de rechange pour votre modèle. Dans le cas d'une installation avec la plaque de finition de 10 po, vous avez besoin de la plaque de finition de 10 po (10). Placez la sous-plaque et la plaque de finition à la place de l'anneau de finition utilisé pour un montage dans un seul trou. Introduisez les manchons filetés (9) de la plaque de finition et de la sous-plaque dans les trous de montage de l'évier. Introduisez les tubes et le manchon fileté du robinet (2) dans la plaque de finition et les trous de montage, puis montez le robinet sur la plaque de finition. Assurez-vous que les pattes de la plaque de finition et de la sous-plaque sont bien placées dans les rainures en dessous du robinet. Montez le robinet comme le montre la figure ci-dessus avec les écrous (8), le support (4) et l'écrou, à l'aide de la clé (7).

2



Water Line Connections

A. Ensure all fittings and end connections are free of debris. Faucet fittings (1) are 3/8" compression, with ends colored red for hot and blue for cold. Loop tubing (2) if it is too long. **Note: Recommended tubing minimum bend diameter is 8".** Secure metal nut (3) on faucet tube to supply valve connection (4) and hand tighten, then tighten one additional turn with wrench. **DO NOT OVERTIGHTEN.** Repeat for other tube. **WARNING: Do not use pipe dope or other sealants on water line connections.**

B. Custom Fit Connections

If you determine the PEX supply tubing for this faucet is too long and must be shorter to create an acceptable installation, be sure to read the instructions and plan ahead. When cutting the supply tubing the installer accepts the responsibility to do so in a way that allows a leak-free joint to be created. Delta is not responsible for tubing that is cut too short or cut in a way that will not allow for a leak-free joint.

For custom fit installations, you must use RP50952 sleeves supplied with model and nuts included on supply lines. **Tube cut must be straight.** See plastic sleeve installation instructions found in RP50952 and included in this document for more information.

Secure metal nut (1) on faucet tube to supply valve connection (2) and hand tighten, then tighten an additional 2 turns with wrench. DO NOT OVERTIGHTEN. Repeat for other tube.

Potential Problems and Remedies

- **Tubing is not cut perpendicular to the axis of the tube:** carefully make an additional cut, being careful not to cut the tube too short.
- **Tubing is cut too short:** buy a coupling union and a replacement supply line that mate together from a store. The coupling union end intended to connect to the faucet must mate to the standard 3/8" connection nuts and plastic sleeves supplied with the faucet.
- **The plastic sleeve or connection nut is lost:** purchase a replacement nut and/or plastic sleeve that are designed to seal with PEX tubing. **NOTICE: DO NOT use a metal sleeve, RP51243 gasket (supplied with faucet) or ferrule in the place of the plastic sleeve supplied, it may not create a leak-free joint.**
  WARNING: Do not use pipe dope or other sealants on water line connections.

Notice

Property damage and water leak possible. Incorrectly installed or unapproved check valve assemblies may cause water leaks and property damage. Follow instructions to install check valve assemblies provided with this faucet.

A. Conexiones a la Línea de Agua

Asegúrese que todos los accesorios y las conexiones finales estén libres de residuos. Los accesorios (1) son de compresión de 3/8", con los extremos de color rojo para el agua caliente y azul para el agua fría. Enlace las tuberías (2) si es muy larga. **Nota: La curva mínima recomendada es de 8" de diámetro.** Fije la tuerca de metal (3) en el tubo de la llave de agua a la conexión (4) y apriete a mano, luego apriete con una vuelta adicional con una llave de tuercas. **NO APRIETE DEMASIADO.** Repita con el otro tubo. **AVISO: No use compuesto para tuberías u otros selladores en las conexiones de la tubería de agua.**

B. Conexiones Especiales

AVISO: Si usted determina que la tubería PEX para el suministro de agua para esta llave de agua es muy larga y debe recortarse para crear una instalación aceptable, asegúrese leer las instrucciones y planifique de antemano. Cuando corte la tubería de suministro el instalador acepta la responsabilidad de hacerlo de una manera que permite crear una articulación sin filtraciones. Delta no se responsabiliza por las tuberías que se han cortado demasiado cortas o cortadas de una manera que no permite una articulación libre de filtración.

Para instalaciones hechas a la medida, usted debe usar mangas RP50952 incluidas con el modelo y las tuercas incluidas en las tuberías de suministro. El corte del tubo debe ser recto. Vea las instrucciones para la instalación de la manga plástica incluida con el RP50952 y para más información incluida en este documento.

Fije la tuerca de metal (1) en la tubería de la llave de agua / grifo a la conexión de la válvula de suministro (2) y apriete a mano. Con la llave de tuercas, apriete la tuerca dándole 2 vueltas más de si fuera apretado a mano.. NO APRIETE DEMASIADO. Repita con la otra tubería.

Problemas Potenciales y Soluciones

- **La tubería no está cortada perpendicular al eje del tubo:** cuidadosamente haga un corte adicional, teniendo cuidado de no cortar el tubo demasiado corto.
- **La tubería está cortada demasiado corta:** compre en un almacén un acoplamiento de unión y una tubería de suministro de repuesto que acoplen. El extremo de la unión de acoplamiento que es para conectar a la llave de agua debe acoplar con las tuercas estándares de 3/8" y mangas de plástico incluidas con la llave de agua / grifo.
- **La manga plástica o la tuerca de conexión se ha perdido:** compre una tuerca de repuesto y/o manga plástica diseñada para sellar con la tubería PEX.
  AVISO: No use una manga de metal, RP51243 empaque (suministrado con el grifo) o casquillo, en vez de la manga incluida puede no crear una articulación sin filtración. AVISO: No use compuesto para tuberías u otros selladores en las conexiones de la tubería de agua.

Aviso

Daños a la propiedad y fugas o filtraciones de agua son posibles. El ensamble de la llave de paso incorrectamente instalado o no aprobado puede causar fugas de agua y daños a la propiedad. Siga las instrucciones para instalar el ensamble de la llave de paso provista con esta llave de agua.

A. Branchement à la tuyauterie

Assurez-vous que tous les raccords sont exempts de corps étrangers. Le branchement est effectué au moyen de raccords de robinetterie (1) 3/8 po à compression. L'extrémité du raccord d'eau chaude est rouge et celle du raccord d'eau froide est bleue. Faites une boucle avec le tube (2) s'il est trop long. **Note : Le diamètre minimal de la courbure doit être d'au moins 8 po.** Vissez l'écrou métallique (3), qui se trouve sur le tube du robinet, sur le raccord du robinet d'alimentation (4) et serrez-le à la main, puis faites un tour supplémentaire avec une clé. **PRENEZ GARDE DE TROP SERRER.** Raccordez l'autre tube de la même manière. **MISE EN GARDE : N'utilisez pas de pâte à joint ni d'autres produits d'étanchéité sur les raccords de tuyauterie.**

B. Spéciaux Tuyauterie Branchement

NOTIFICATION : Si le tube d'alimentation en PEX de ce robinet est trop long et doit être raccourci, lisez les instructions et prenez le temps de réfléchir. Vous devez couper le tube de manière à obtenir un joint étanche. Delta n'accepte aucune responsabilité si le tube a été coupé trop court ou d'une manière qui empêche le joint d'être étanche.

Dans le cas des installations sur mesure, vous devez utiliser les manchons RP50952 fournis avec le robinet et les écrous qui se trouvent sur les arrivées d'eau. Le tube doit être coupé d'équerre. Pour obtenir plus de renseignements, veuillez consulter les instructions d'installations des manchons en plastique qui se trouvent dans le kit RP50952 et qui sont incluses dans le présent document.

Vissez l'écrou métallique (1), qui se trouve sur le tube du robinet, sur le raccord du robinet d'alimentation (2) et serrez-le à la main. Serrez-le à la main, puis faites deux tours à l'aide d'une clé. PRENEZ GARDE DE TROP SERRER. Raccordez l'autre tube de la même manière.

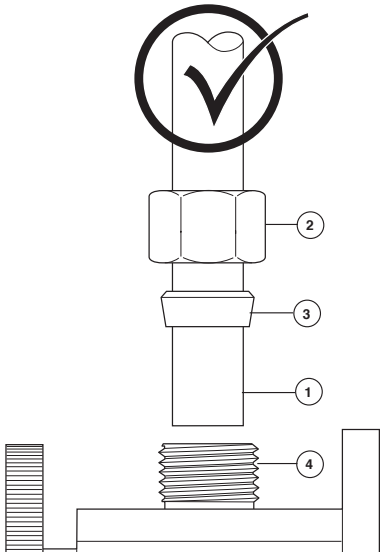
Problèmes possibles et correctifs

- **Le tube n'est pas sectionné perpendiculairement à son axe :** Faites une nouvelle coupe en prenant garde de ne pas trop raccourcir le tube.
- **Vous avez coupé le tube trop court :** Achetez un raccord-union et un tube d'arrivée d'eau de rechange dans un magasin. L'extrémité du raccord-union à raccorder au robinet doit être compatible avec les écrous 3/8 po standard et les manchons en plastique fournis avec le robinet.
- **Vous avez perdu un manchon en plastique ou un écrou de raccordement :** Achetez un écrou et/ou un manchon en plastique conçus pour former un raccord étanche avec un tube PEX. **NOTIFICATION : Évitez d'utiliser un manchon métallique, RP51243 le joint (fournie avec le robinet) ou une virole à la place du manchon en plastique fourni. Le joint ne sera pas étanche. MISE EN GARDE : N'utilisez pas de pâte à joint ni d'autres produits d'étanchéité sur les raccords de tuyauterie.**

Avis

Possibilité de dommages matériels et de fuite. Une mauvaise installation des clapets de non-retour ou l'installation de clapets de non-retour non approuvés peut entraîner des fuites et des dommages matériels. Installez les clapets de non-retour fournis avec ce robinet conformément aux instructions.

Correct method
Método Correcto
Bonne méthode



Custom Fit Connections - Plastic Sleeve Installation Instructions

1. Identify desired length of tube (1). Leave 1" - 2" of extra length to allow for easier installation and cut tube. Ensure cut is straight and burr free.

2. Slide nut (2) and plastic sleeve (3) onto cut tube. Ensure sleeve is oriented as shown.

3. Insert tube into outlet fitting (4). Tube should touch bottom of hole inside fitting.

4. Slide plastic sleeve down tube until it engages top of fitting. **NOTICE: Failure to use plastic sleeve in the correct orientation will result in disconnection and possible water damage.**

5. Slide nut over plastic sleeve. With wrench, tighten nut 2 turns past finger tight.

Notice

Property damage and water leak possible. Incorrectly installed or unapproved plastic sleeve may cause water leaks and property damage. Follow instructions to custom fit using plastic sleeve provided with this faucet before making final connections and turning on the supplies.

Conexiones Especiales - Instructions d'installations de le manchon en plastique

1. Identifique la longitud deseada del tubo (1). Deje 1" – 2" de soltura para una instalación más fácil y sin rebabas. Asegure que el corte sea recto y sin rebabas.

2. Resbale la tuerca (2) y la manga plástica (3) sobre el tubo cortado. Asegure la manga se orienta según lo demostrado.

3. Introduzca el tubo dentro del accesorio (4). El tubo debe tocar el fondo del agujero dentro del accesorio.

4. Deslice la manga plástica hacia abajo en el tubo hasta que encaje el la parte superior del accesorio. **AVISO: El no usar la manga plástica en la orientación correcta resultará en desconexión y posible daño por agua.**

5. Deslice la tuerca sobre la manga plástica. Con la llave de tuercas, apriete la tuerca dándole 2 vueltas más de si fuera apretado a mano.

Aviso

Daños a la propiedad y fugas o filtraciones de agua son posibles. El manguito plástico incorrectamente instalado o no aprobado puede causar fugas de agua y daños a la propiedad. Siga las instrucciones para instalar el manguito plástico provisto con esta llave de agua antes de hacer las conexiones finales y abrir el suministro de agua.

Spéciaux Branchement - Instrucciones para la Instalación del la Manga Plástica

1. Identifiez la longueur désirée du tube (1). Laissez 1 à 2 pouces de la longueur supplémentaire pour faciliter l'installation et coupez le tube. Faites une coupe d'équerre et enlevez les bavures.

2. Glissez l'écrou (2) et la manchon en plastique (3) sur le tube coupé. Assurez la manchon est orienté comme montré.

3. Introduisez le tube dans le raccord (4). Le tube doit toucher le fond du trou à l'intérieur du raccord.

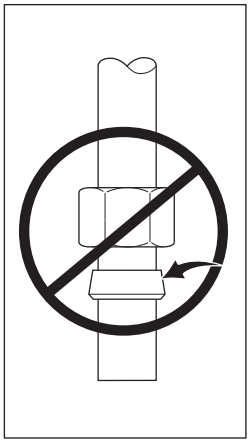
4. Faites glisser le manchon en plastique dans le tube jusqu'à ce qu'il pénètre dans la partie supérieure du raccord. **NOTIFICATION : Si le manchon en plastique n'a pas été installé dans l'orientation correcte, le raccord peut se défaire et l'eau peut occasionner des dommages.**

5. Faites glisser l'écrou sur le manchon en plastique. Serrez-le à la main, puis faites deux tours à l'aide d'une clé.

Avis

Possibilité de dommages matériels et de fuite. Une mauvaise installation du manchon en plastique ou l'installation d'un manchon en plastique non approuvé peut entraîner des fuites et des dommages matériels. Installez le manchon en plastique fourni avec ce robinet conformément aux instructions pour l'installation sur mesure avant de faire les branchements finals et d'ouvrir les robinets d'alimentation.

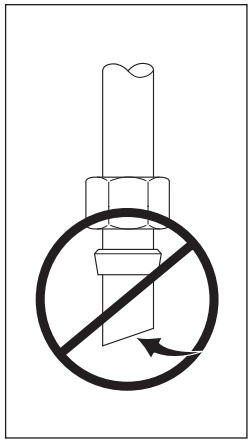
Incorrect Installation
Instalación Incorrecta
Installation Incorrecte



Do not install sleeve upside down.

No instale la manga boca abajo.

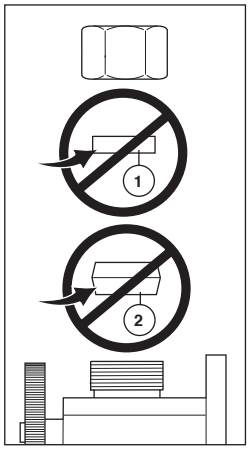
N'installez pas le manchon à l'envers.



Ensure cut is straight.

Asegúrese que el corte esté recto.

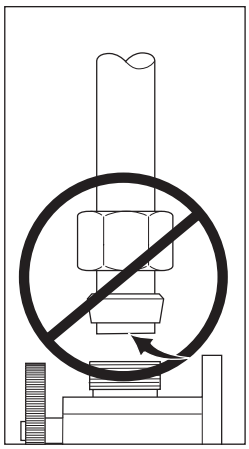
Assurez-vous que la coupe est droite.



Do not use RP51243 gasket (1) supplied with PEX tubing or brass ferrule (2) supplied with valve stops.

No use RP51243 empaque (1) suministrado con el tubería de PEX o el casquillo de bronce (2) suministrado con las válvulas de cierre.

N'utilisez pas RP51243 le joint (1) fournie avec la tuyauterie de PEX ou la bague en cuivre (2) fournie avec les robinets d'arrêt.

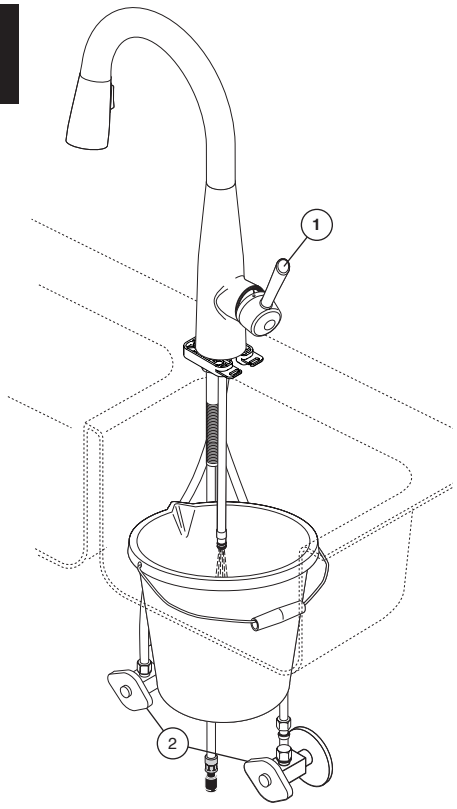


Ensure tube is fully inserted into stop before sliding sleeve down to engage top of fitting.

Asegúrese que el tubo este completamente introducido dentro del tope antes de deslizar la manga hacia abajo para encajar la parte superior del accesorio.

Assurez-vous que le tube est introduit entièrement dans le robinet d'arrêt avant de faire glisser le manchon vers le bas pour le fixer à la partie supérieure du raccord.

3



Flush Supply Lines

Because your sprayer has been factory assembled to the hose, we do not recommend removing to flush the lines. Instead, if possible, we recommend placing a bucket below the outlet fitting and one of two options.

1. With the valve in mix open position (1), slowly open and close the supply stops (2).
2. With the supply stops open (2), slowly open and close the handle in the mix position (1).

This will prevent debris from being lodged in the hose and sprayer.

*You can also remove sprayer to flush, after step 4, if no bucket is available.

Deje correr el agua por las tuberías de suministro

Debido a que el rociador se ha ensamblado a la manguera en la fábrica, no recomendamos quitarlo para limpiar las tuberías/líneas. En cambio, si es posible, recomendamos colocar una cubeta debajo de la conexión de salida y una de las dos siguientes opciones.

1. Con la válvula en posición mixta (1), lentamente abra y cierre las llaves de paso (2).
2. Con las llaves de paso abiertas (2), lentamente abra y cierre la manija en la posición mixta (1).

Esto evitará que residuos permanezcan en la manguera y en el rociador.

*También se puede eliminar el pulverizador para limpiar, después del paso 4, si no balde está disponible.

Rincez les tuyaux d'alimentation

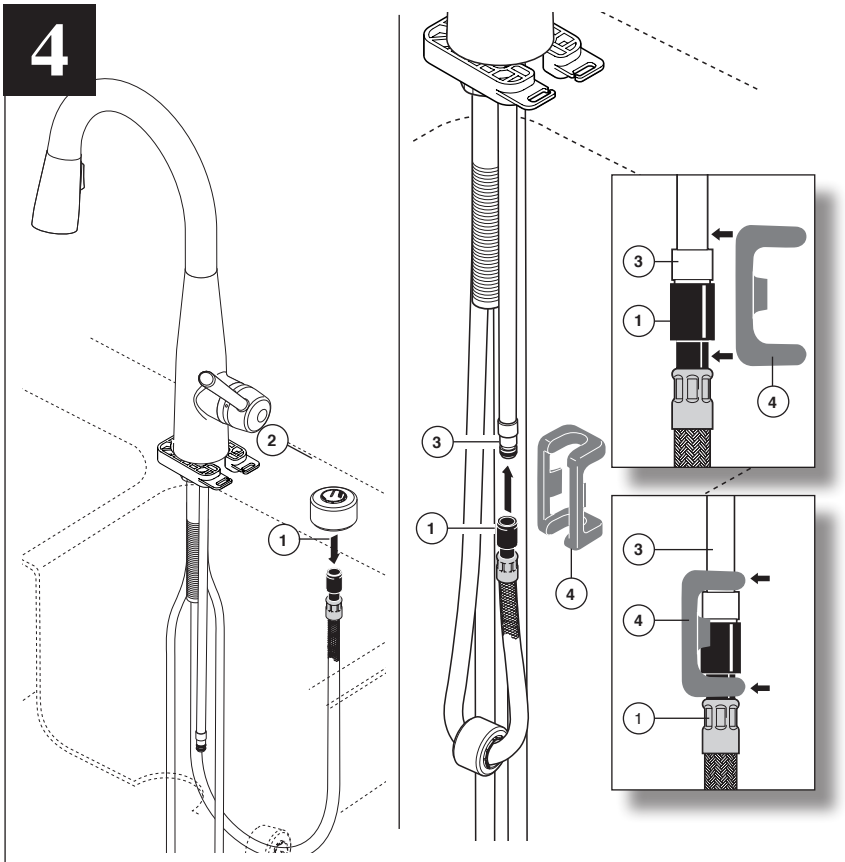
Étant donné que le pulvérisateur a été fixé au tuyau souple en usine, nous vous déconseillons de l'enlever pour rincer les tuyaux d'alimentation. Nous vous recommandons plutôt de placer, dans la mesure du possible, un seau sous le raccord de sortie et d'employer l'une des deux solutions suivantes :

1. Alors que la soupape est en position de mélange (1), ouvrez les robinets d'arrêt lentement (2), puis refermez-les.
2. Alors que les robinets d'arrêt sont ouverts (2), amenez la manette doucement en position de mélange (1), puis ramenez-la en position de fermeture.

Cette opération sert à évacuer les corps étrangers qui pourraient se trouver dans le tuyau souple et le pulvérisateur.

*Vous pouvez également enlever du pulvérisateur pour nettoyer, après l'étape 4, si pas de seau est disponible.

4



Clip Installation

Insert hose end (1) through hose weight assembly (2). Push hose end (1) onto faucet outlet (3). Attach clip (4) over hose and outlet as shown. Pull down moderately to ensure connection has been made.

Notice

Property damage and water leak possible. Incorrectly installed or unapproved clip and hose may cause water leaks and property damage. Follow instructions to install hose and clip provided with this faucet.

Instalación de Gancho

Inserte el extremo de la manguera (1) a través del ensamble del peso de la manguera (2). Pase el extremo de la manguera (1) sobre la salida del ensamble del solenoide (3). Conecte el gancho (4) sobre la manguera y la salida como se muestra. Hale moderadamente para asegurar que la conexión se ha realizado.

Aviso

Un gancho o manguera incorrectamente instalado o no autorizado puede causar fugas o filtraciones de agua y daños a la propiedad. Siga las instrucciones para instalar la manguera y el gancho incluidos con esta llave de agua - grifo.

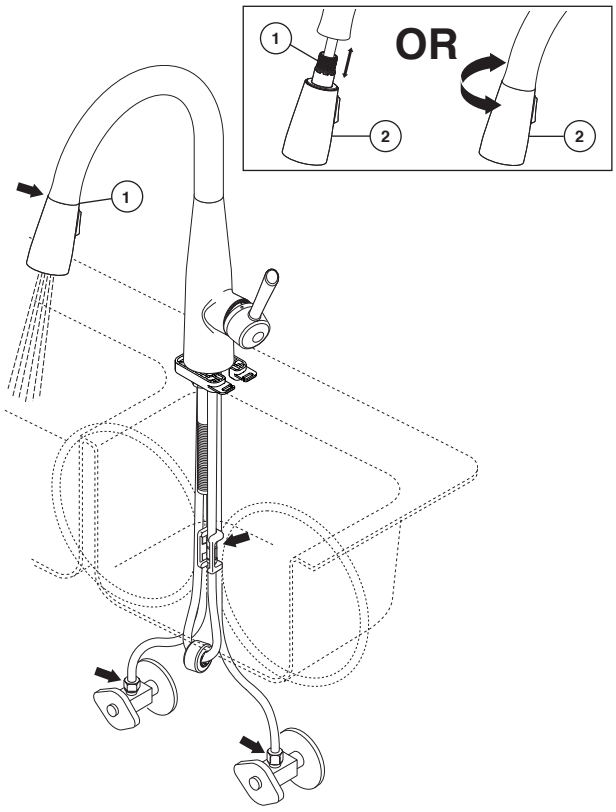
Installation de l'agrafe

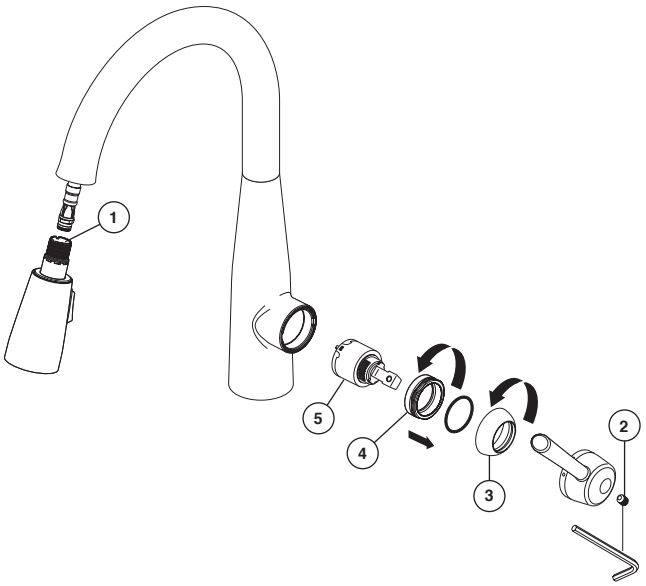
Introduisez l'extrémité du tuyau souple (1) sur la sortie du robinet (2) du tuyau souple. Poussez l'extrémité du tuyau souple (1) sur la sortie de l'électrovanne (3). Fixez l'agrafe (4) sur le tuyau souple et la sortie comme le montre la figure. Tirez modérément sur le tuyau souple pour vous assurer qu'il est bien raccordé.

Avis

Possibilité de dommages matériels et de fuite. Une mauvaise installation du tuyau souple et de l'agrafe peut entraîner une fuite et des dommages matériels. Installez le tuyau souple et l'agrafe fournis avec de robinet conformément aux instructions.

5





Check for Leaks

Check all connections at arrows for leaks. Refer back to the appropriate installation instructions and retighten if necessary. If assembled correctly and still leaking, check for damage to seals and order appropriate replacements. Check sprayer to hose connection (1), hand tighten plus 1/4 turn if necessary.

Sprayer will lock into position when brought into proximity of the spout magnet. The sprayer can be removed by either pulling directly out from the spout or by twisting 90° in either direction which will cause the magnets to repel and the head to decouple from the spout (recommended). Check the operation of the sprayer by operating the trigger (2) from aerator to spray.

Revise si hay fugas

Examine los sitios con las flechas en las conexiones para asegura que no hay ninguna filtración de agua. Si es necesario, guíese por las instrucciones apropiadas para la instalación y apriete otra vez. Si están ensamblado correctamente, fíjese si los sellos están dañados y ordene las piezas de repuesto apropiadas. verificar el rociador a la manguera de conexión (1), apriete a mano más 1/4 de giro si es necesario.

El rociador quedará cerrado en posición cuando lo acerca al imán del surtidor. El rociador se puede sacar halando directamente hacia afuera del surtidor o torciéndolo 90° en cualquier dirección que hace que los imanes se repelen y la cabeza que se desacople del surtidor (se recomienda). Examine el funcionamiento del rociador operando el gatillo (2) del aireador al rociador.

Vérifiez l'étanchéité.

Vérifiez l'étanchéité de tous les raccords aux endroits indiqués par les flèches. Consultez les instructions d'installation et serrez les raccords de nouveau au besoin. Si le raccord est monté correctement, vérifiez l'état des joints et commandez les pièces de rechange nécessaires. Vérifiez pulvérisateur pour raccord de tuyau (1), serrer à la main plus 1/4 de tour si nécessaire.

Le pulvérisateur se bloque en position lorsque vous l'approchez de l'aimant du bec. Pour enlever le pulvérisateur, tirez sur celui-ci directement pour l'écarter du bec ou faites-le pivoter de 90° dans un sens ou dans l'autre pour l'enlever en utilisant la force de répulsion des aimants (méthode recommandée). Vérifiez le fonctionnement de la douchette en actionnant la gâchette (2) pour passer du mode aération au mode pulvérisation.

Maintenance

If faucet exhibits very low flow – Unscrew hose from spray head and clean debris from screen (1) (the screen is located just inside the spray) . **IMPORTANT:** Reinstall screen to the spray head (failure to reinstall the screen could damage internal parts).

If faucet leaks from under handle or from spout outlet – Loosen set screw (2) inside of handle. Remove handle. Remove cap (3) by rotating counterclockwise. Bonnet may be stiff due to O-ring, but should rotate by hand. Remove bonnet nut (4) by rotating counterclockwise with a wrench. Remove cartridge (5) by pulling directly back on stem. Replace cartridge and reassemble.

WARNING: Failure to securely tighten bonnet nut with a wrench could result in water damage.

Note: A small amount of water may run out the spout or drip for a very short period after the faucet is shut off. This is a natural occurrence caused by the long flexible hose.

Mantenimiento

Si la llave de agua exhibe un flujo muy bajo – Destornille la manguera de la cabeza del rociador y limpie el residuo de la rejilla (1) (la rejilla está ubicada dentro del rociador) . **IMPORTANTE:** Reinstale la rejilla a la cabeza del rociador (el no reinstalar la rejilla podría dañar las partes internas).

Si la llave de agua tiene filtración por debajo de la manija o de la salida del surtidor – Afloje el tornillo de ajuste (2) dentro de la manija. Quite la manija. Quite el capuchón ó casquetet (3) girando en dirección contraria a las manecillas del reloj. El capuchón puede estar tieso como resultado del aro O, pero debe girar a mano. Quite la tuerca tapa (4) girando en dirección contraria a las manecillas del reloj con una llave de tuercas. Quite el cartucho (5) halando la espiga directamente hacia atrás. Coloque otra vez el cartucho y ensamble.

AVISO: Si no aprieta fijamente la tuerca tapa con una llave de tuercas pudiera resultar en daño por agua.

Nota: Una cantidad pequeña de agua puede escurrirse del surtidor o gotear por un período corto de tiempo después de cerrar el agua. Esto es una ocurrencia natural causada por la manguera larga flexible.

Entretien

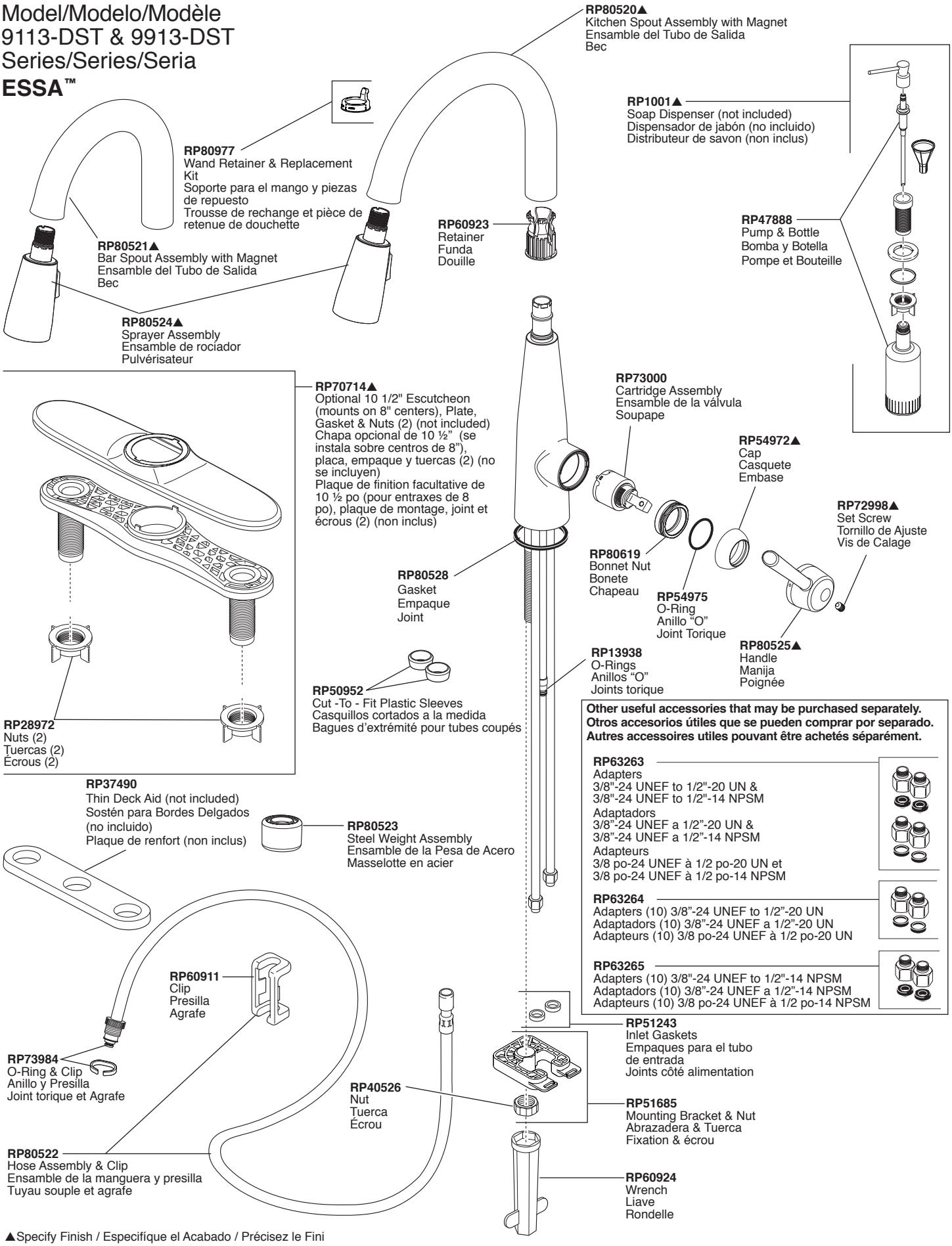
Si le débit du robinet est très faible – Vous pouvez aussi séparez le tuyau souple de la tête de pulvérisation en le dévissant et nettoyer le tamis métallique (il est situé immédiatement à l'intérieur de la tête de pulvérisation) (1). **IMPORTANT:** remettez le tamis en place (l'absence du tamis peut entraîner l'endommagement des éléments internes).

Si le robinet fuit sous la manette ou par la sortie du bec – Desserrez la vis de calage (2) à l'intérieur de la manette et enlevez la manette. Enlevez le chapeau (3) en le tournant dans le sens antihoraire. Le chapeau peut être légèrement coincé en raison de la présence du joint torique, mais vous devriez réussir à la tourner à la main. Retirez l'écrou à portée sphérique (4) en le tournant dans le sens antihoraire à l'aide d'une clé. Enlevez la cartouche (5) en tirant directement sur la tige. Remplacez la cartouche et remontez le robinet.

MISE EN GARDE : L'omission de bien serrer l'écrou-chapeau peut entraîner une fuite d'eau et des dommages.

Note : Un peu d'eau peut s'écouler du bec ou dégoutter pendant une très courte période après la fermeture du robinet. Cela est normal en raison de la longueur du flexible.

Model/Modelo/Modèle
9113-DST & 9913-DST
Series/Series/Seria
ESSA™



▲Specify Finish / Especifíque el Acabado / Précisez le Fini

ROOF HYDRANT

The Woodford, ASSE 1057 listed, SRH Sanitary Roof Hydrant is intended for irrigation purposes and to provide water, in any weather condition, on commercial building roofs. Applications include window washing, cleaning of condenser coils, cooling towers, green roofs and other types of roof top equipment. The SRH is backflow protected with a field testable ASSE 1052 double check backflow preventer.

The SRH does not require 1) a drain line from the valve body located inside the building or 2) the removal of vacuum breaker or use of a diverter to protect from freezing.

The SRH-MS *with* Mounting System allows for installation flexibility. It is not necessary to install hydrant when hydrant support is mounted to the roof. The hydrant support utilizes a 3″ diameter opening that allows the hydrant to be installed or easily removed at a later time. All necessary mounting hardware for proper installation on a commercial roof is supplied, including a 2 degree shim for pitch adjustment.

Hydrant Features:

- ASSE 1057 Listed
- No Drain Line Required - *With the hose removed*, a venturi action draws water out of the internal reservoir and discharges out the backflow preventer.
- Superior reservoir evacuation times without removing the backflow preventer.
- Variable flow plunger for longer life is not easily damaged and assures proper shut-off.
- Large easy to open lift handle.
- Adjustable link for easy adjustment and positive lever lock tension.
- All hydrant repairs can be made from top without removing hydrant.

Specifications:

- Hose Connection Backflow Preventer:
  - Model 50H with 3/4″ hose connection
  - ASSE 1052 Listed
  - Field Testable Dual Check holds against 125 psi backflow pressure
- ¾″ NPT female inlet connection.
- 1 ½″ U.S. made galvanized pipe.
- **Maximum Working Pressure:** 100 p.s.i.
- **Maximum Temperature:** 120° F

SRH WARNING	Supply PSI	Run Time
After each use, run hydrant without a	60	5 seconds
hose to ensure proper evacuation.	25	15 seconds

Mounting System: *(Can be ordered Separately)*

- Cast iron Hydrant Support
- Cast iron Under Deck Flange
  - 4 bolts draw tight against the roof decking and the hydrant support.
  - 3 clamp screws tighten against the hydrant pipe to secure the hydrant's vertical position through the roof.
- Well Seal seals tight between the hydrant support and hydrant pipe.
- EPDM Boot covers well seal and top of hydrant support.
- 2° Shim is supplied, if needed, for installation on pitched roofs.

Patent Informatioin: https://www.woodfordmfg.com/patents/

For Installation / Troubleshooting Instructions go to www.woodfordmfg.com or call 1-800-621-6032

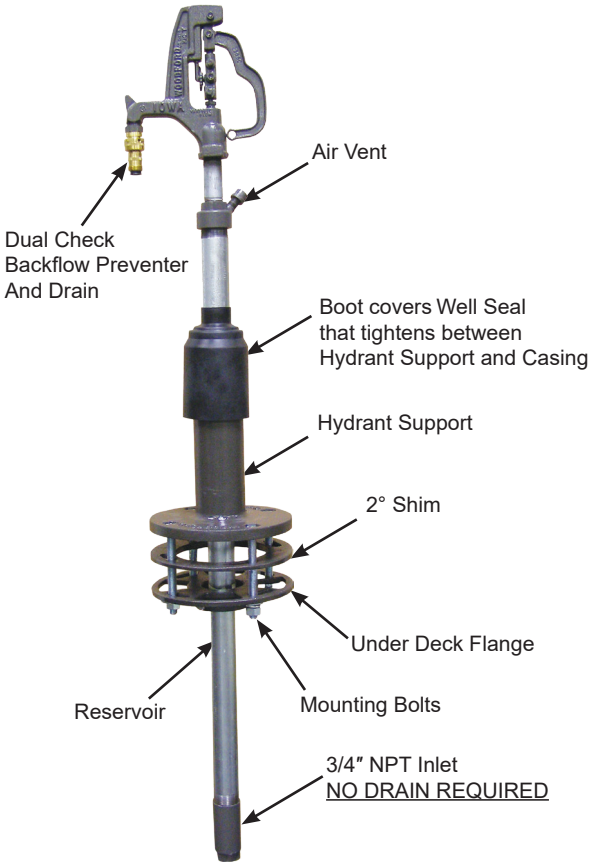
WOODFORD

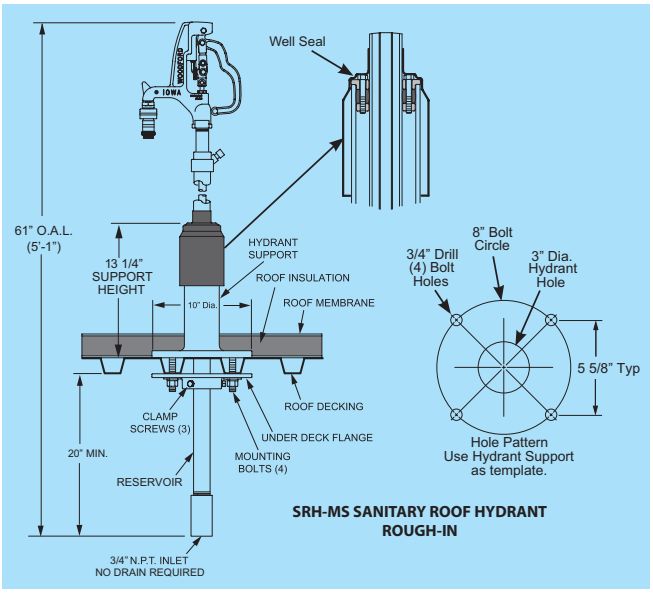
Freezeless Sanitary Roof Hydrant

No Drain Line Required!

Model SRH-MS

Can be ordered with or without Mounting System (MS).

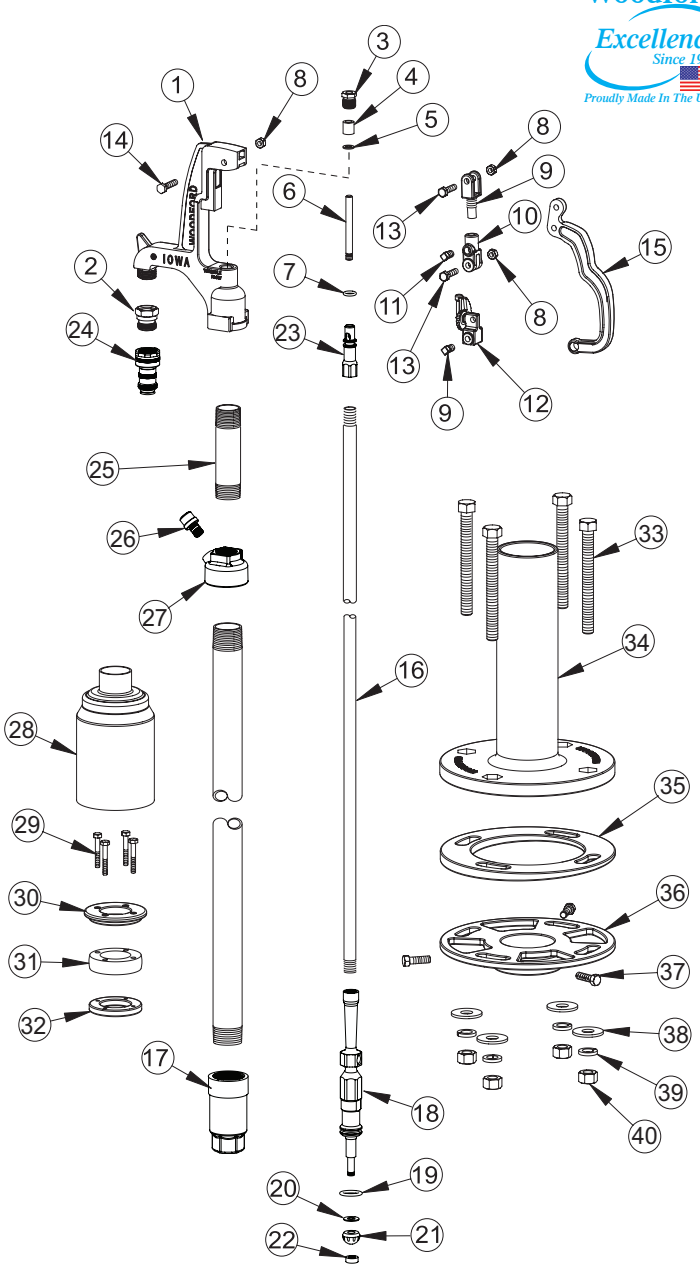




MODEL SRH-MS PARTS LIST

ITEM	PART#	DESCRIPTION
	15126	SRH Head Assembly (Includes Items 1-15, 23 & 24)
1	10632	SRH Head
2	10004	3/4" Brass Hose Nozzle
3	10100	Packing Nut
4	10101	Packing
5	10102	Packing Support Washer
6	15121	Brass Rod Stem
7	10117	O-Ring - 206
8	10206	Hex Nut (3)
9	10614	RH Upper Link
10	15242	RH Lower Link (Includes Item 11)
11	10019	Set Screw (2)
12	15243	RH Cam & Clevis Assembly
13	10020	Link Bolt (2)
14	10021	Lever Bolt
15	10613	RH Lever
16	10024	Operating Pipe
17	15122	Valve Body (3/4" NPT Inlet)
18	15123	Venturi Assembly
19	10118	Valve Body O-Ring
20	50027	Support Washer
21	51013	Ball Valve Rubber
22	50028	Round Brass Nut
23	10116	Sealing Head Coupling
24	50H-BR	50H Backflow Preventer
25	15120	Upper Pipe Assembly
26	15124	SRH Vent Assembly
27	15125	SRH Casing Cover
28	10608	RH Boot, EPDM
29	10625	Bolt, Allen Head 1/4-20 X 1 3/4" (4)
30	10626	Well Seal-1 1/2", Top
31	10119	Well Seal-1 1/2", EPDM
32	10627	Well Seal-1 1/2", Bottom
33	10584	Bolt, Hex Head 5/8-11 X 6" (4)
34	10579	Hydrant Support, Casting
35	10581	2° Shim, Casting
36	10580	Under Deck Flange
37	10607	Screw, Clamp 3/8-16 Hex Head X 1 3/4" (3)
38	10604	Washer, Plain 5/8 (4)
39	10605	Washer, Lock 5/8 (4)
40	10585	Nut, Hex 5/8-11 UNC (4)
	RK-SRH	Repair Kit (Includes items 3-7, 19-22)
	RK-RHL	Repair Kit (Includes items 8-15)

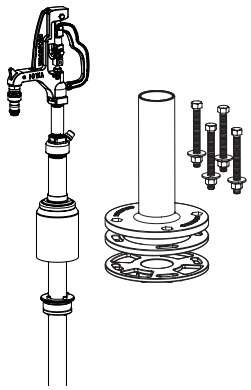
Woodford Excellence Since 1929
Proudly Made In The U.S.A.



When ordering, specify SRH part number option listed below.

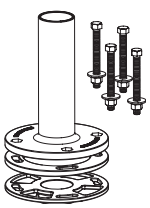
Part# SRH-MS Consists of the complete Roof Hydrant system:
Qty.1 **SRH** Hydrant shipped in 1 carton.
Qty. 1 **RH-MS** Mounting System shipped in 1 carton.

Total Shipping Wt.
2 cartons: 50 lbs



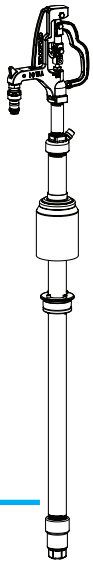
Part# RH-MS
Carton contents consists of:
Mounting System/ Rough-In Components (Parts 33-40 above)
- Hydrant Support
- 2° Shim,
- Under Deck Flange
- Mounting Bolts, Nuts, Washers.

Shipped in 1 Carton.
Shipping Wt. - 30 lbs



Part# SRH
Carton contents consists of:
- Hydrant Assembly (Parts 1-32 above)
- Well Seal (Parts 28-32 above)
- Boot (Part 28 above)

Shipped in 1 Carton.
Shipping Wt. - 20 lbs



For more information contact...

WOODFORD MANUFACTURING COMPANY, LLC

2121 Waynoka Road, Colorado Springs, Colorado 80915 • **Phone:** (800) 621-6032
To view our complete product line visit: ***www.woodfordmfg.com*** *or email:* ***sales@woodfordmfg.com***

INSTALLATION INSTRUCTIONS

For more information contact…

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Rev 06/10 Form No. IISRH.102

SRH-MS

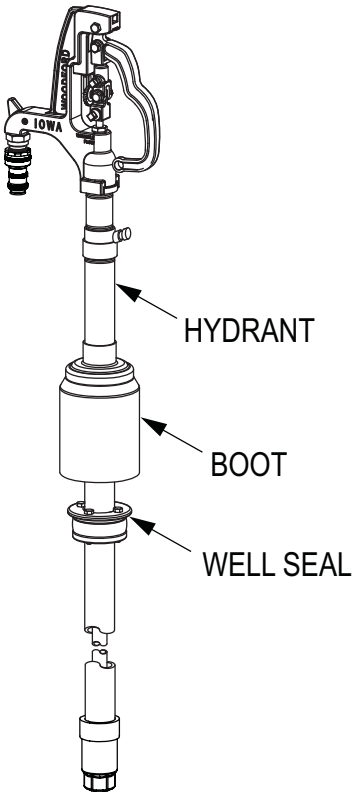
Sanitary Roof Hydrant

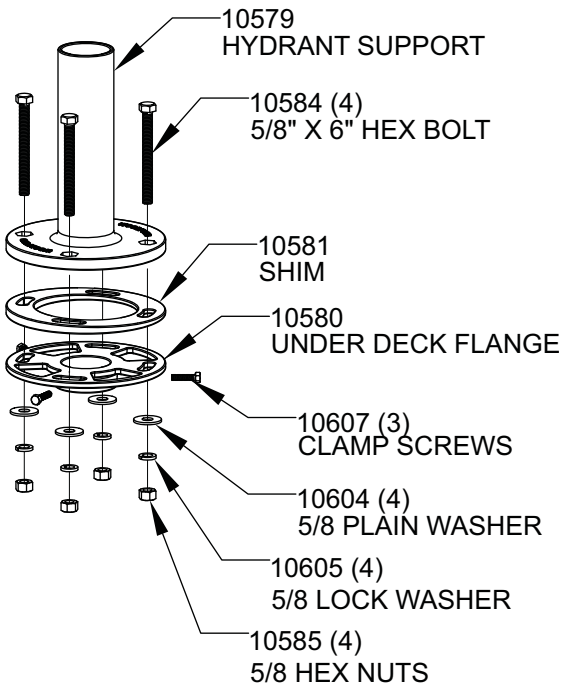
No drain line required!

- The complete SRH-MS Roof Hydrant with Mounting System is shipped in 2 separate cartons.

See carton contents below.

- Both cartons are required to complete the Roof hydrant installation.
- The following installation instructions are suggested for installing on a typical corrugated steel roof





SRH-MS
Complete Roof Hydrant & Mounting System
Shipped in Cartons 1 & 2

CARTON 1
SRH
CONTENTS

- SRH Hydrant
- Well Seal
- Boot

CARTON 2
RH-MS
CONTENTS

- Hydrant Support – cast iron
- 2” Shim – cast iron
- Under Deck Flange – cast iron
- Mounting Bolts, Nuts & Washers

INSTALLATION INSTRUCTIONS

For more information contact…

WOODFORD MANUFACTURING COMPANY

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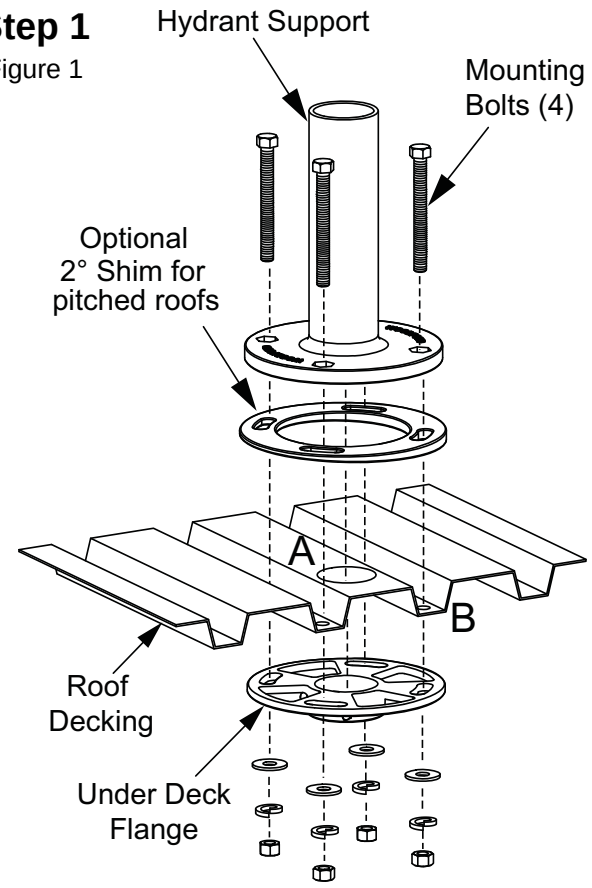
RHMS

Mounting System

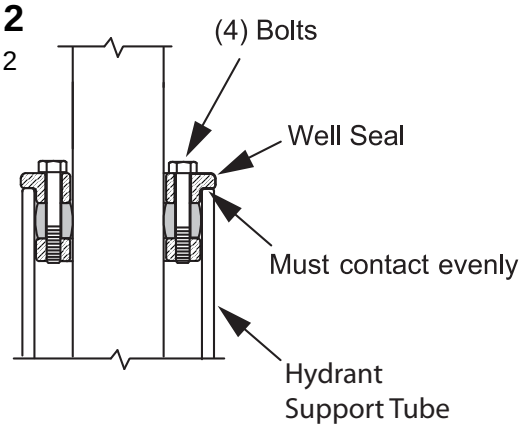
Step 1

Figure 1



Step 2

Figure 2



STEP 1 Figure 1

1. Set Hydrant Support in desired location on roof decking.
2. Transfer (5) hole locations using Hydrant Support flange as a template.
3. Set aside Hydrant Support and cut (1) 3” hole for the hydrant (A) and drill (4) 11/16” bolt holes (B) through roof decking.
4. Reposition Hydrant Support over holes in decking.
5. Drop (4) 5/8” X 6” Mounting Bolts through Hydrant Support flange. Heads should bottom in hex pockets.
6. From underneath roof decking, install Under Deck Flange. Position slots in Flange over the (4) bolts and secure with plain washers, lock washers and nuts.

STEP 2 Figure 2

7. Loosen, but do not remove, the (4) bolts on the Well Seal.
8. Install the hydrant through the top of the Hydrant Support.
9. Position the hydrant to desired height.
10. Slide the Well Seal down and seat into the Hydrant Support tube.
    Make sure that the top of the Well Seal contacts the top of the tube evenly all around.
11. Tighten the four bolts evenly until hydrant pipe is clamped securely.
    a. NOTE: Installer may desire to not tighten the well seal until supply and drain connections are attached.

INSTALLATION INSTRUCTIONS

For more information contact…

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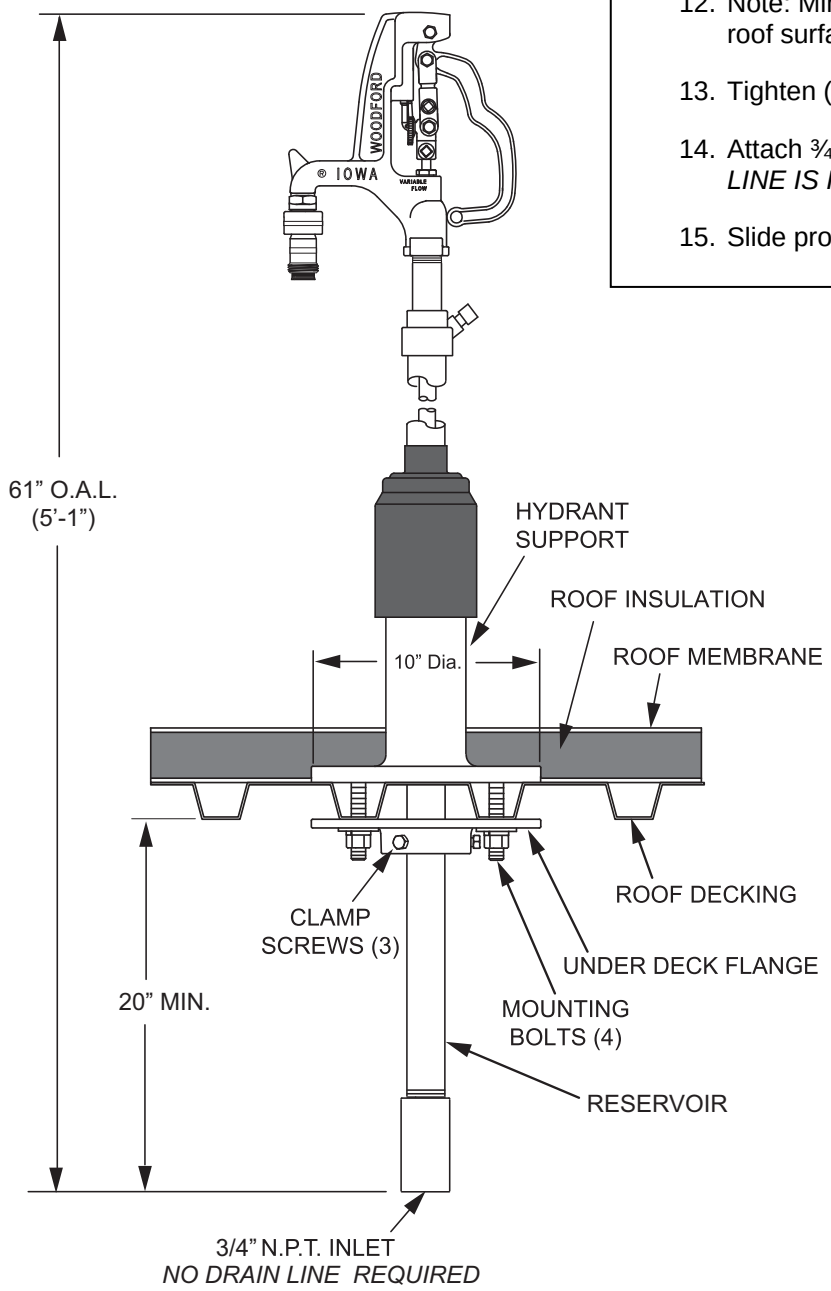
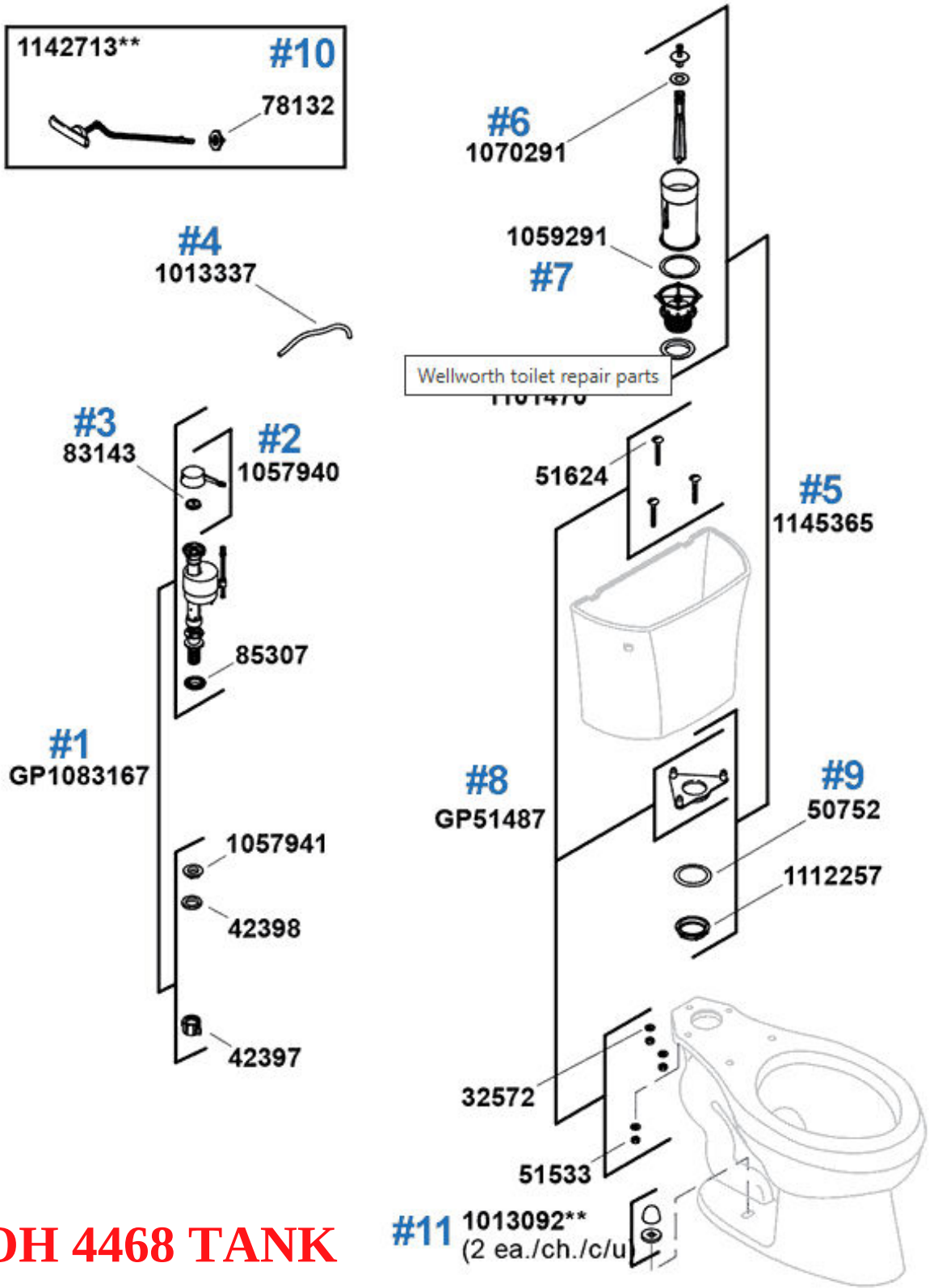
SRH-MS

Roof Hydrant & Mounting System Rough-In



12. Note: Minimum rough-in length below interior roof surface is 20".
13. Tighten (4) Under-Deck Flange Clamp Screws.
14. Attach ¾" NPT supply line to inlet. *NO DRAIN LINE IS REQUIRED.*
15. Slide protective Boot down over Well Seal.

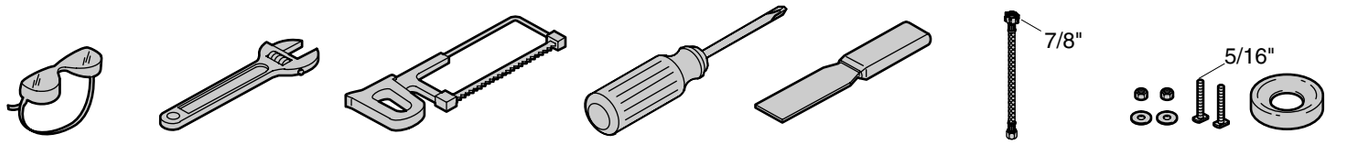
TOILETS



KOH 4468 TANK

KOHLER®

Installation Guide
Guide d'installation
Guía de instalación



Required/Requis/Requiere

WARNING: Risk of property or product damage.

Do not use in-tank cleaners in your toilet. Products containing chlorine (calcium hypochlorite) can seriously damage fittings in the tank. This damage can cause leakage and property damage.

AVERTISSEMENT: Risque d'endommagement des biens ou du produit.

Ne pas utiliser les détergents faits pour le réservoir du W.C. Les produits contenant du chlore (hypochlorite de calcium) peuvent sérieusement endommager les raccords du réservoir. Ceci peut créer des fuites et des dommages matériels.

ADVERTENCIA: Riesgo de daños al producto o a la propiedad.

No utilice productos para limpiar el inodoro que se coloquen dentro del tanque. Los productos que contienen cloro (hipoclorito de calcio) pueden dañar las piezas del tanque. Esto puede causar fugas y daños a la propiedad.

Before You Begin

Remove the old toilet, T-bolts, and wax ring. Inspect and repair the water supply.

IMPORTANT! If the toilet will not be installed right away, temporarily plug the waste flange with a rag.

Avant de commencer

Retirer l'ancien W.C. les boulons en T et l'anneau de cire. Inspecter et réparer l'alimentation d'eau.

IMPORTANT! Si l'installation du W.C. n'est pas immédiate, recouvrir temporairement l'ouverture de la bride avec un chiffon.

Antes de comenzar

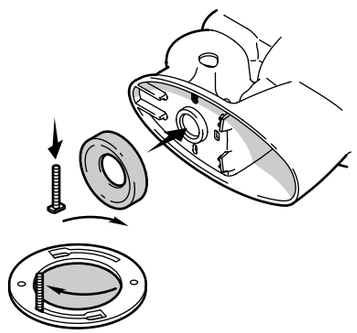
Quite el inodoro viejo, los pernos en T y el anillo de cera. Revise y repare el suministro de agua.

¡IMPORTANTE! Si el inodoro no se instalará de inmediato, tape temporalmente la brida de desagüe con un trapo.

1 Install T-bolts and a new wax ring. Remove the rag if the waste flange was plugged.

Installer les boulons en T et un nouvel anneau de cire. Retirer le chiffon si la bride d'évacuation était bouchée.

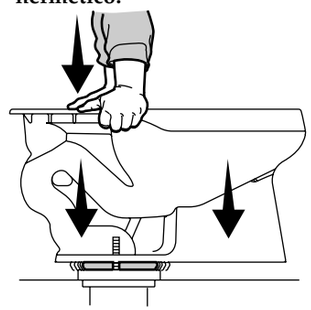
Instale los pernos en T y un anillo de cera nuevo. Retire el trapo si se cubrió la brida del desagüe.



2 Apply weight evenly. **Do not move after placement! Watertight seal may be broken**!

Appliquer du poids uniformément. **Ne pas bouger après avoir placé. Le joint d'étanchéité pourrait être cassé!**

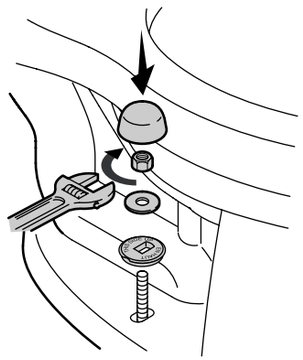
Aplique peso uniformemente. **¡No mueva después de colocar! ¡Se puede romper el sello hermético!**



3 Install the washers and nuts as shown. **Do not overtighten!**

Assembler les rondelles et les écrous comme indiqué. **Ne pas trop serrer!**

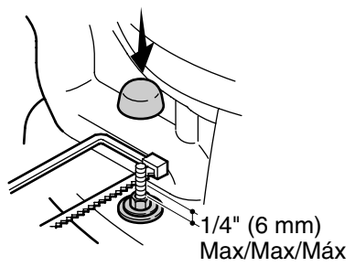
Instale las arandelas y las tuercas como se ilustra. **¡No apriete demasiado!**



4 If needed, cut off the T-bolt before installing the bolt cap.

Si nécessaire, couper le boulon en T avant d'installer le cache-boulon.

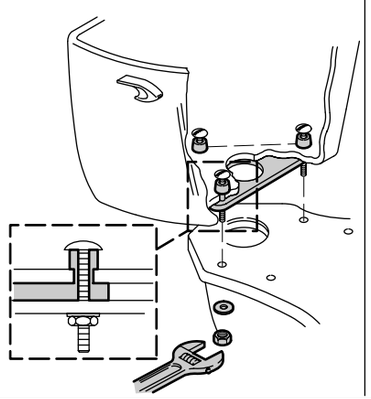
Si es necesario, corte el perno en T antes de instalar el tapaperno.



5 Tighten the tank bolts evenly. **Do not overtighten!**

Serrer les boulons du réservoir de manière égale. **Ne pas trop serrer!**

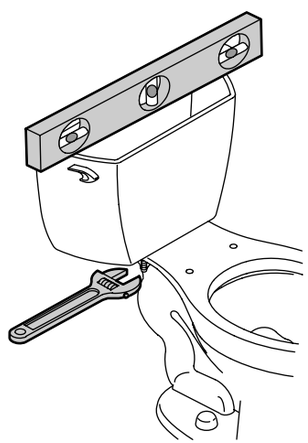
Apriete uniformemente los pernos del tanque. **¡No apriete demasiado!**



6 Adjust the tank bolts to level the tank.

Régler les boulons du réservoir au niveau du réservoir.

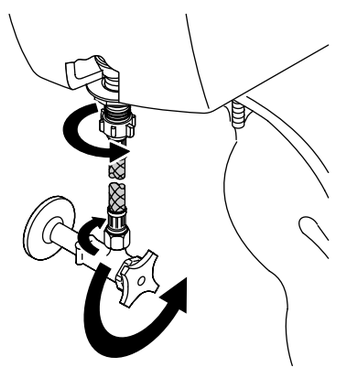
Ajuste los pernos del tanque para nivelar el tanque.



7 Connect supply and turn on the water. **Do not overtighten!**

Rebrancher et ouvrir l'alimentation d'eau. **Ne pas trop serrer!**

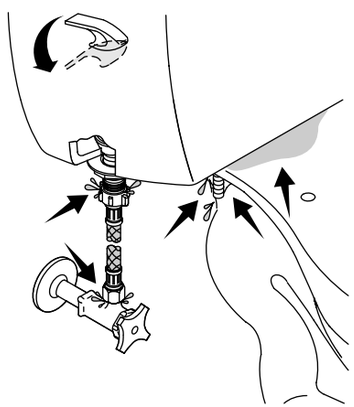
Conecte el suministro y abra el agua. **¡No apriete demasiado!**



8 Flush several times and check for leaks.

Purger plusieurs fois et vérifier s'il y a des fuites.

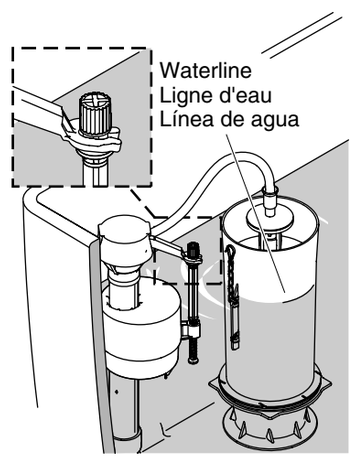
Accione la descarga varias veces y verifique que no haya fugas.



9 If needed, adjust the water level.

Si besoin, ajuster le niveau d'eau.

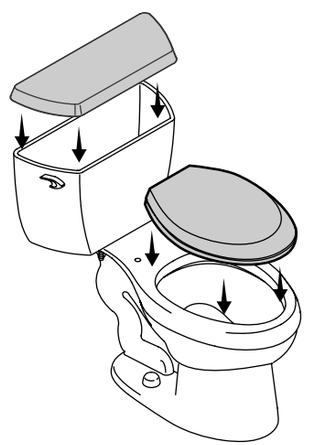
Si es necesario, ajuste el nivel de agua.



10 Install the seat and tank lid.

Installer le siège et le couvercle du réservoir.

Instale el asiento y la tapa del tanque.



WARNING: Risk of property or product damage.
Do not use in-tank cleaners in your toilet. Products containing chlorine (calcium hypochlorite) can seriously damage fittings in the tank. This damage can cause leakage and property damage.

ONE-YEAR LIMITED WARRANTY

KOHLER plumbing products are warranted to be free of defects in material and workmanship for one year from date of installation.

Kohler Co. will, at its election, repair, replace or make appropriate adjustment where Kohler Co. inspection discloses any such defects occurring in normal usage within one (1) year after installation. Kohler Co. is not responsible for removal or installation costs. **Use of in-tank toilet cleaners will void the warranty.**

To obtain warranty service contact Kohler Co. either through your Dealer, Plumbing Contractor, Home Center or E-tailer, or by writing Kohler Co., Attn.: Customer Care Center, 444 Highland Drive, Kohler, WI 53044, USA, or by calling 1-800-4-KOHLER (1-800-456-4537) from within the USA and Canada, and 001-800-456-4537 from within Mexico, or visit www.kohler.com within the USA, www.ca.kohler.com from within Canada, or www.mx.kohler.com in Mexico.

IMPLIED WARRANTIES INCLUDING THAT OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY. KOHLER CO. AND/OR SELLER DISCLAIMS ANY LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some states/provinces do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of special, incidental or consequential damages, so these limitations and exclusions may not apply to you. This warranty gives you specific legal rights. You may also have other rights which vary from state/province to state/province.

This is Kohler Co.'s exclusive written warranty.

SERVICE PARTS

For service parts information, refer to the toilet lid label or visit www.kohlerserviceparts.kohler.com.

For copies of our literature, call our Customer Care Center: 1-800-4KOHLER (1-800-456-4537).

The following information is available at www.us.kohler.com; just search by your model number:

- Troubleshooting
- Care and Cleaning Tips
- Detailed Installation Information

USA/Canada: 1-800-4KOHLER
Mexico: 001-800-456-4537
www.kohler.com

AVERTISSEMENT: Risque d'endommagement du produit.
Ne pas utiliser des détergents conçus pour le réservoir dans les WC. Les produits contenant du chlore (hypochlorite de calcium) peuvent sérieusement endommager les raccords du réservoir. Cet endommagement peut créer des fuites et des dommages matériels.

GARANTIE LIMITÉE D'UN AN

Les produits de plomberie KOHLER sont garantis contre tout défaut matériel et de fabrication pour un an, à partir de la date de l'installation.

Kohler Co. jugera à sa discrétion, de la réparation, du remplacement ou du réglage approprié et ceci après toute inspection faite par Kohler Co. de tous défauts dus à une utilisation normale et ceci pendant un (1) an à partir de la date d'installation. Kohler Co. n'est pas responsable des coûts de démontage ou d'installation. **L'utilisation de nettoyants à l'intérieur du réservoir annulera la garantie.**

Pour obtenir un service-garantie, contacter Kohler Co. par l'intermédiaire de votre vendeur, plombier, centre de rénovation, revendeur par internet ou par écrit à Kohler Co. à l'attention de: Customer Care Center, Kohler, 444 Highland Drive Wisconsin 53044 USA, ou en appelant le 1-800-4-KOHLER (1-800-456-4537) à partir des États-Unis et du Canada, et le 001-800-456-4537 à partir du Mexique, ou rendez-vous à l'adresse www.kohler.com aux États-Unis, à l'adresse www.ca.kohler.com au Canada, ou à l'adresse www.mx.kohler.com au Mexique.

LA DURÉE DES GARANTIES TACITES, Y COMPRIS CELLES DE QUALITÉ MARCHANDE ET D'APTITUDE À UN EMPLOI PARTICULIER, SE LIMITE EXPRESSÉMENT À LA DURÉE DE LA PRÉSENTE GARANTIE. KOHLER CO. ET/OU LE REVENDEUR DÉCLINENT TOUTE RESPONSABILITÉ CONTRE LES DOMMAGES PARTICULIERS, IMPRÉVUS OU DE CIRCONSTANCE. Certains états/provinces ne permettent pas la limitation sur la durée de la garantie implicite, ou l'exclusion ou la limitation de dommages spéciaux, accessoires ou indirects, et, par conséquent, ces limitations et exclusions pourraient ne pas s'appliquer dans votre cas.Cette garantie vous donne des droits légaux spécifiques. Vous pouvez également avoir d'autres droits qui varient d'un état/province à l'autre.

Ceci constitue la garantie écrite exclusive de Kohler Co. Garantía.

PIÈCES DE RECHANGE

Pour obtenir des informations sur les pièces de rechange, se reporter à l'étiquette du couvercle des W.C. ou consulter le site Web www.kohlerserviceparts.kohler.com.

Pour obtenir des copies de notre documentation, appeler le service à la clientèle: Aux É.U., composer le 1-800-4KOHLER (1-800-456-4537).

Les informations ci-dessous sont disponibles sur le site www.us.kohler.com; rechercher simplement en fonction du numéro de modèle:

- Dépannage
- Conseils d'entretien et de nettoyage
- Informations détaillées sur l'installation

ADVERTENCIA: Riesgo de daños al producto o a la propiedad.
No utilice productos para limpiar el inodoro que se coloquen dentro del tanque. Los productos que contienen cloro (hipoclorito de calcio) pueden dañar las piezas del tanque. Este daño puede causar fugas y daños a la propiedad.

GARANTÍA LIMITADA DE UN AÑO

Se garantiza que los productos de plomería KOHLER están libres de defectos de material y mano de obra por un año a partir de la fecha de instalación.

Kohler Co., a su criterio, reparará, reemplazará o realizará los ajustes pertinentes en los casos en que la inspección realizada por Kohler Co. determine que dichos defectos ocurrieron durante el uso normal en el transcurso de un (1) año a partir de la fecha de la instalación. Kohler Co. no se hace responsable de los gastos de desinstalación o instalación. **El uso de limpiadores de inodoro que se colocan dentro del tanque anulará la garantía.**

Para obtener el servicio de garantía, comuníquese con Kohler Co. a través de su distribuidor, contratista de plomería o distribuidor a través de Internet, o escriba directamente a: Kohler Co., Attn.: Customer Care Center, 444 Highland Drive, Kohler, WI 53044, U.S.A. o llame al 1-800-4-KOHLER (1-800-456-4537) desde los Estados Unidos y Canadá, o al 001-800-456-4537 desde México, o visite www.kohler.com desde los Estados Unidos, www.ca.kohler.com desde Canadá, o www.mx.kohler.com en México.

TODA GARANTÍA IMPLÍCITA INCLUYENDO LAS DE COMERCIALIZACIÓN E IDONEIDAD DEL PRODUCTO PARA UN USO DETERMINADO, SE LIMITA EXPRESAMENTE A LA DURACIÓN DE LA PRESENTE GARANTÍA. KOHLER CO. Y/O EL VENDEDOR NO SE HACEN RESPONSABLES POR CONCEPTO DE DAÑOS PARTICULARES, INCIDENTALES O INDIRECTOS. Algunos estados/provincias no permiten limitaciones en cuanto a la duración de una garantía implícita o a la exclusión o limitación de daños particulares, incidentales o indirectos, por lo que estas limitaciones y exclusiones pueden no aplicar a su caso. Esta garantía le otorga ciertos derechos legales específicos. Además, usted puede tener otros derechos que varían de estado a estado y provincia a provincia.

El presente documento constituye la garantía exclusiva por escrito de Kohler Co.

PIEZAS DE REPUESTO

Para información sobre las piezas de repuesto, consulte la etiqueta de la tapa del inodoro o visite www.kohlerserviceparts.kohler.com.

Para obtener copias de nuestra información escrita, llame a nuestro centro de atención al cliente: 1-800-4KOHLER (1-800-456-4537).

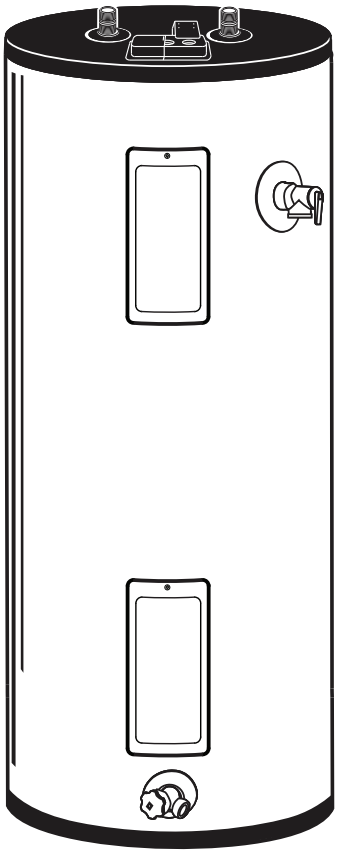
La siguiente información está disponible en www.us.kohler.com; simplemente busque por número de modelo:

- Tabla para resolver problemas
- Consejos de cuidado y limpieza
- Información detallada de instalación

WATER HEATER

Installation Instructions and Use & Care Guide

Residential Electric Water Heater



Read this manual and the labels on the water heater before you install, operate, or service it. If you have difficulty following the directions, or aren't sure you can safely and properly do any of this work yourself:

- Call your local plumbing supplies store to have this water heater installed. Professional Installation is available for this product and the work is guaranteed.
- Schedule an appointment with a qualified person to install your water heater. Call our Technical Assistance Hotline which is listed on the water heater's warranty sheet. We can help you with installation, operations, troubleshooting, or maintenance. Before you call, write down the model and serial number from the water heater's data plate.

Incorrect installation, operation, or service can damage the water heater, your house and other property, and present risks including fire, scalding, electric shock, and explosion, causing serious injury or death.

AHRI Certification® applies to residential electric water heaters with rated capacities of 20 to 120 gallon and input ratings of 12 kw or less.

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Installation 7
Troubleshooting 21
Maintenance 24
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Diagrams 30
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LOW LEAD CONTENT

Keep this manual in the pocket on heater for future reference whenever maintenance, adjustment or service is required.

Retain your original receipt as proof of purchase.

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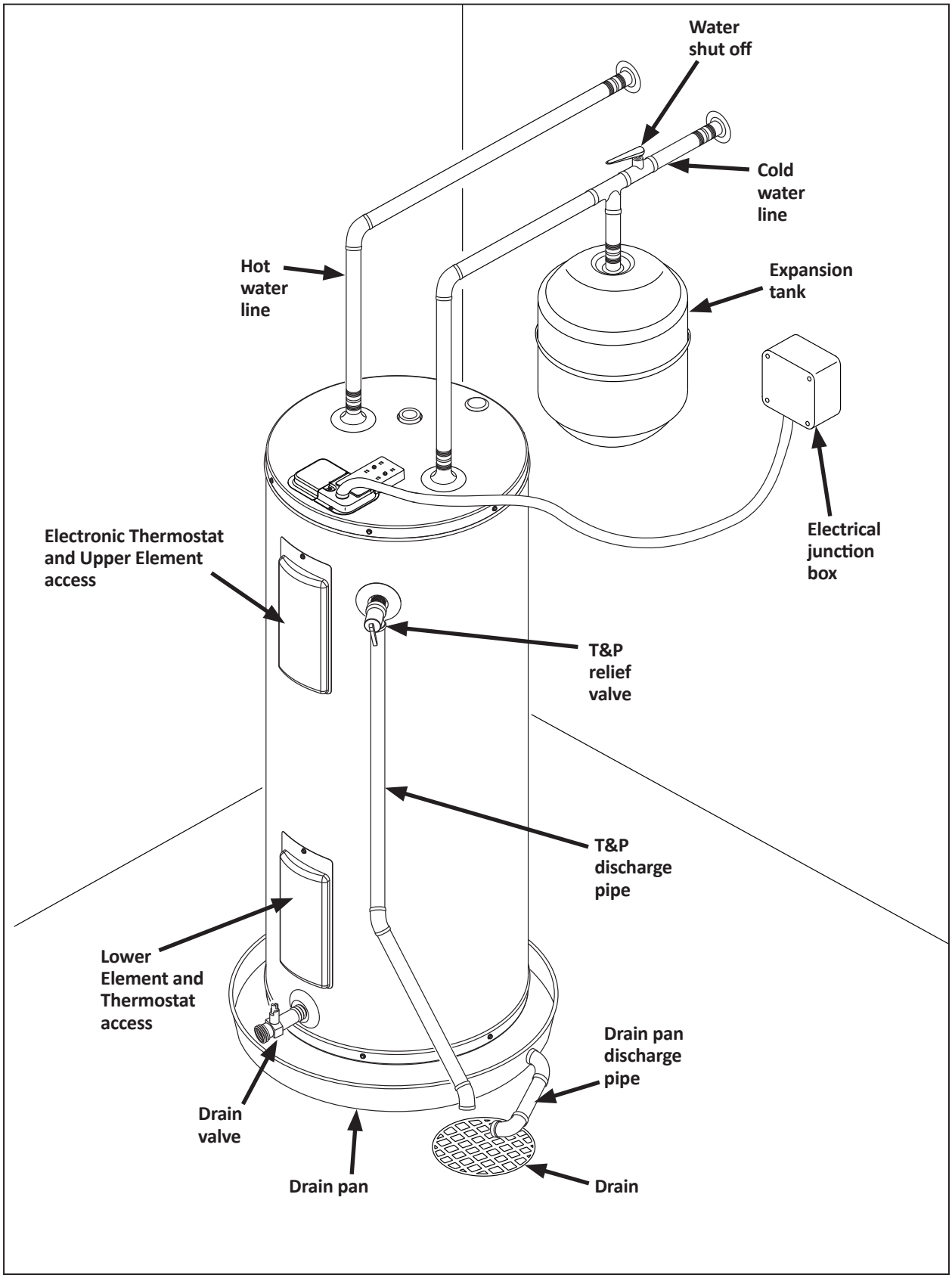
July 2018

COMPLETED INSTALLATION (TYPICAL)



IMPORTANT SAFETY INFORMATION

Read and follow all safety messages and instructions in this manual.

This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible property damage, serious injury or death. Do not remove any permanent instructions, labels, or the data plate from either the outside of the water heater or on the inside of the access panels. Keep this manual near the water heater.

DANGER	**DANGER indicates hazardous situation that, if not avoided, will result in death or serious injury.**
WARNING	**WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.**
CAUTION	**CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.**
NOTICE	**NOTICE indicates practices not related to physical injury.**

This product is certified to comply with a maximum weighted average of 0.25% lead content as required in some areas.

Important information to keep

Fill out this section and keep this manual in the pocket of the water heater for reference.

Date Puchased:

Model number:

Serial number:

Maintenance performed:*	Date:

*Drain and flush tank and remove and inspect anode rod after first six months of operation and at least annually thereafter. Operate the Temperature and Pressure Relief Valve (T&P) annually and inspect T&P valve every 2-4 years (see the label on the T&P valve for maintenance schedule). If no label is attached to the T&P Relief Valve, follow the instructions in the T&P Relief Valve Maintenance section of this manual. See the Maintenance section for more information about maintaining this water heater.

IMPORTANT SAFETY INFORMATION

To reduce the risk of property damage, serious injury or death, read and follow the precautions below, all labels on the water heater, and the safety messages and instructions throughout this manual.

RISKS DURING INSTALLATION AND MAINTENANCE

Electric Shock Risk

Contact with the electrical parts in the junction box and behind the access doors can result in severe injury or death from electrical shock:

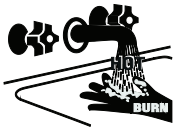
- Disconnect power by opening the circuit breaker or removing the fuses before installing or servicing.
- Use a non-contact circuit tester to confirm that power is off before working on or near any electrical parts.
- Replace the junction box cover and access doors after servicing.

Lifting Risk

⚠ **WARNING!** The water heater is heavy. Follow these precautions to reduce the risk of property damage, injuries from lifting or impact injuries from dropping the water heater.

- Use at least two people to lift the water heater.
- Be sure you both have a good grip before lifting.
- Use an appliance dolly or hand truck to move the water heater.

RISKS DURING OPERATION



Scalding Risk

This water heater can make water hot enough to cause severe burns instantly, resulting in severe injury or death.

Feel water before bathing or showering. To reduce the risk of scalding, install Thermostatic Mixing Valves (temperature limiting valves) at each point-of-use. These valves automatically mix hot and cold water to limit the temperature at the tap. Mixing valves are available from local hardware stores. Follow manufacturer's instructions for installation and adjustment of the valves.

The thermostat(s) on this water heater have been factory set to approximately 120°F to reduce the risk of scalding. Higher temperatures increase the risk of scalding, but even at 120°F, hot water can scald. If you choose a higher temperature, Thermostatic Mixing Valves located at each point-of-use are particularly important to help avoid scalding.

Temperature	Time to Produce a Serious Burn
120°F (49°C)	More than 5 minutes
125°F (52°C)	1½ to 2 minutes
130°F (54°C)	About 30 seconds
135°F (57°C)	About 10 seconds
140°F (60°C)	Less than 5 seconds
145°F (63°C)	Less than 3 seconds
150°F (66°C)	About 1½ seconds
155°F (68°C)	About 1 second

For information about changing the factory thermostat setting(s), refer to the "Adjusting Temperature" section in this manual ("Step 10" on page 15).

Even if you set the water heater thermostat(s) to a low setting, higher temperatures may occur in certain circumstances:

In some cases, repeated small draws of water can cause the hot and cold water in the tank to "stack" in layers. If this happens, the water can be as much as thirty degrees hotter than the thermostat setting. This temperature variation is the result of your usage pattern and is not a malfunction.

Water temperature will be hotter if someone adjusted the thermostat(s) to a higher setting.

Problems with the thermostat(s), or other malfunctions may result in higher than expected water temperatures.

If the water heater is in a hot environment, the water in the tank can become as hot as the surrounding air, regardless of the thermostat setting.

If the water supplied to the water heater is pre-heated (for example, by a solar system) the temperature in the tank may be higher than the water heater's thermostat setting.

To reduce the risk of unusually hot water reaching the fixtures in the house, install Thermostatic Mixing Valves at each point-of-use.

If anyone in your home is at particular risk of scalding (for example, the elderly, children, or people with disabilities) or if there is a local code or state law requiring a certain water temperature

at the hot water tap, then these precautions are particularly important.

According to a national standard American Society of Santiary Engineering (ASSE 1070) and most local plumbing codes, the water heater's thermostat should not be used as the sole means to regulate water temperature and avoid scalds.

Properly adjusted Thermostatic Mixing Valves installed at each point-of-use allow you to set the tank temperature to a higher setting without increasing risk of scalds. A higher temperature setting allows the tank to provide much more hot water and can help provide proper water temperatures for appliances such as dishwashers and washing machines. Higher tank temperatures (140°F) also kill bacteria that cause a condition known as "smelly water" and can reduce the levels of bacteria that cause water-borne diseases.

Water Contamination Risk

Do not use chemicals that could contaminate the potable water supply. Do not use piping that has been treated with chromates, boiler seal, or other chemicals.

Fire Risk

To reduce the risk of a fire that could destroy your home and seriously injure or kill people:

- Do not store things that can burn easily such as paper or clothes next to the water heater.
- Be sure the junction box cover and the access door covers are in place. These covers keep debris from entering and potentially being ignited, and help keep any internal fires from spreading.
- Keep the water heater from becoming wet. Immediately shut the water heater off and have it inspected by a qualified person if you find that the wiring, thermostat(s) or surrounding insulation have been exposed to water in any way (e.g., leaks from plumbing, leaks from the water heater itself can damage property and could cause a fire risk). If the water heater is subjected to flood conditions or the thermostat(s) have been submerged in water, the entire water heater must be replaced.
- Make electrical connections proprly, according to the instructions on page 14. Use 10 gauge solid copper wire. Use a UL listed or CSA approved strain relief. Connect ground wire to green ground screw.

Explosion Risk

High temperatures and pressures in the water heater tank can cause an explosion resulting in property damage, serious injury or death. A new Temperature and Pressure (T&P) Relief Valve is included with your water heater to reduce risk of explosion by discharging hot water. Additional temperature and pressure protective equipment may be required by local codes.

A nationally recognized testing laboratory maintains periodic inspection of the valve production process and certifies that it meets the requirements for Relief Valves for Hot Water Supply Systems, ANSI Z21.22. The T&P Relief Valve's relief pressure must not exceed the working pressure rating of the water heater as stated on the rating plate.

Maintain the T&P Relief Valve properly. Follow the maintenance instructions provided by the manufacturer of the T&P Relief Valve (label attached to T&P Relief Valve). If no label is attached to the T&P Relief Valve, follow the instructions in the T&P Relief Valve Maintenance section of this manual.

An explosion could occur if the T&P Relief Valve or discharge pipe is blocked. Do not cap or plug the T&P Relief Valve or discharge pipe.

Fire and Explosion Risk if Hot Water is Not Used for Two Weeks or More

⚠ CAUTION! Hydrogen gas builds up in a hot water system when it is not used for a long period (two weeks or more). Hydrogen gas is extremely flammable. If the hot water system has not been used for two weeks or more, open a hot water faucet for several minutes at the kitchen sink before using any electrical appliances connected to the hot water system. Do not smoke or have an open flame or other ignition source near the faucet while it is open.

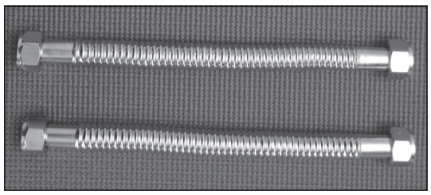


Figure 1 - Flexible connectors use compression fittings and do not require soldering.

Figure 2 - Use a non-contact circuit tester to insure that the power is off before you work on a circuit.

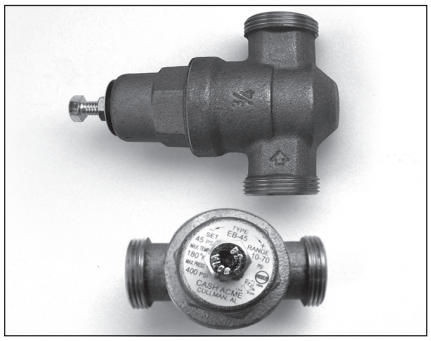


Figure 3 - Install a Pressure Reducing Valve set to 50 to 60 PSI.

1 Review all of the instructions before you begin work.

If you aren't sure that you can safely and properly do this work yourself, call your local hardware store to arrange for Professional Installation (you may also call a qualified person of your choice, such as a licensed plumber or electrician, to have the work done). Improper installation can damage the water heater, your home and other property, and can present risks of serious injury or death.

2 Check with your local and state authorities for any local or state codes that apply to your area. In the absence of local and state codes, follow National Fire Protection Association (NFPA-70) and the current editions of the National Electric Code (NEC) and the International Plumbing Code (IPC). The instructions in this manual comply with national codes, but the installer is responsible for complying with local codes.

Massachusetts code requires this water heater to be installed in accordance with Massachusetts 248-CMR 2.00 and 248-CMR 5.00: State Plumbing Code. Other local and state authorities may have similar requirements or other codes applicable to the installation of this water heater.

3 Before you start, be sure you have, and know how to use, the following tools and supplies:

- Plumbing tools and supplies appropriate for the type of water pipes in your home
- Threaded connectors (figure 1) for the cold and hot water pipes
    - For homes plumbed with plastic pipe, use threaded connectors suitable for the specific type of plastic pipe used: CPVC and PEX (cross-linked polyethylene). Do not use PVC pipe.
    - For homes with copper pipes, you may purchase connector kits with compression fittings that don't require soldering (figure 1). Compression fittings are easier to install than soldering copper pipes.
- Thread sealant tape or pipe joint compound approved for potable water
- Tools to make the electrical connections (for example, screwdrivers, wire strippers)
- Non-Contact circuit tester to check for power (figure 2)
- Water Pressure Gauge (see next page, figure 4)

Recommended Accessories:

- Suitable drain pan (see page 8, figure 6)
- Automatic leak detection and shut-off device
- Pressure Reducing Valve (figure 3)
- Thermal Expansion Tank (see next page, figure 5)
- Point-of-use Thermostatic Mixing Valves (see page 8, figure 7) ■

INSTALLATION

Follow these steps for proper installation:

Step 1:

Verify that your home is equipped and up-to-date for proper operation

Installing a new water heater is the perfect time to examine your home's plumbing system and make sure the system is up to current code standards. There have likely been plumbing code changes since the old water heater was installed. We recommend installing the following accessories and any other needed changes to bring your home up to the latest code requirements.

Use the checklist below and inspect your home. Install any devices you need to comply with codes and assure that your new water heater performs at its best. Check with your local plumbing official for more information.

Water pressure

We recommend checking your home's water pressure with a pressure gauge (figure 4). Most codes allow a maximum incoming water pressure of 80 psi. We recommend a working pressure no higher than 50-60 psi.

HOW: Purchase an inexpensive water pressure gauge available at your local hardware store. Connect the Water Pressure Gauge to an outside faucet and measure the maximum water pressure experienced throughout the day (highest water pressures often occur at night).

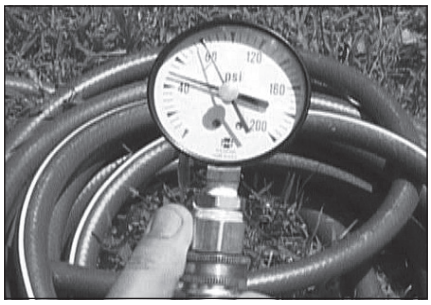


Figure 4 - Use a Water Pressure Gauge to make sure your home's water pressure is not too high.

To limit your home's water pressure: Locate your home's Pressure Reducing Valve (PRV) on the main incoming (cold) water supply line and adjust the water pressure control to between 50 and 60 psi. If your home does not have a Pressure Reducing Valve, install a PRV on the home's main water supply line and set it to between 50 and 60 psi. Pressure Reducing Valves are available at local hardware store.

BACKGROUND: Over the years, many utilities have increased water supply pressures so they can serve more homes. In some homes today, pressures exceed 100 psi. High water pressures can damage water heaters, causing premature leaks. If you have replaced toilet valves, had a water heater leak, or had to repair appliances connected to the plumbing system, pay particular attention to your home's water pressure. When purshasing a PRV, make sure the PRV has a built-in bypass.

Water pressure increase caused by thermal expansion

Verify that you have a properly sized Thermal Expansion Tank (figure 5). We recommend installing an expansion tank if your home does not have one. Codes require a properly pressurized, properly sized Thermal Expansion Tank in almost all homes. (See photo on inside front cover.)

Figure 5 - A Thermal Expansion Tank helps protect the home's plumbing system from pressure spikes.

HOW: Connect the Thermal Expansion Tank (available at your local hardware store) to the cold water supply line near the water heater. The expansion tank contains a bladder and an air charge. To work properly, the Thermal Expansion Tank must be sized according to the water heater's tank capacity and pressurized to match the home's incoming water pressure. Refer to the installation instructions provided with the Thermal Expansion Tank for installation details.

BACKGROUND: Water expands when heated, and the increased volume of water must have a place to go, or thermal expansion will cause large increases in water pressure (despite the use of a Pressure Reducing Valve on the home's main water supply line). The Safe Drinking Water Act of 1974 requires the use of backflow preventers and check valves to restrict water from your home reentering the public water system. Backflow preventers are often installed in water meters and may not be readily visible. As a result, most all plumbing systems today are now "closed," and almost all homes now need a Thermal Expansion Tank.

A Thermal Expansion Tank is a practical and inexpensive way to help avoid damage to the water heater, washing machine, dishwasher, ice maker and even toilet valves. If your toilet occasionally runs for no apparent reason (usually briefly at night), that may be due to thermal expansion increasing the water pressure temporarily.

Water pipe and tank leaks

Leaks from plumbing pipes or from the water heater itself can damage property and could cause a fire risk.

- Install an automatic leak detection and shutoff device (available in hardware stores). These devices can detect water leaks and can shut off the water heater's water supply if a leak occurs.

- Install a suitable drain pan (available in stores) under the water heater (figure 6) to catch condensation or leaks in the piping connections or tank. Most codes require and we recommend installing the water heater in a drain pan that is piped to an adequate drain. The drain pan must be at least two inches wider than the diameter of the water heater. Install the drain pan so the water level would be limited to a maximum depth of 1-3/4".

Figure 6 - A suitable drain pan piped to an adequate drain can help protect flooring from leaks and drips.

Water temperature regulation

Install Thermostatic Mixing Valves (figure 7) to regulate the temperature of the water supplied to each point-of-use (for example, kitchen sink, bathroom sink, bath, shower). Consult the valve manufacturer's instructions or a qualified person.

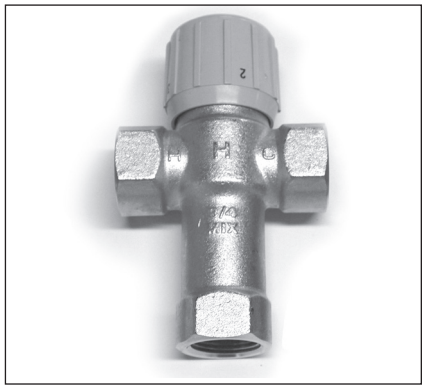


Figure 7 - Thermostatic Mixing Valves installed at each point-of-use can help prevent scalding.

⚠ WARNING! Even if the water heater thermostat is set to a relatively low temperature, hot water can scald. Install Thermostatic Mixing Valves at each point-of-use to reduce the risk of scalding (see page 4).

BACKGROUND: A Thermostatic Mixing Valve, installed at each point-of-use, mixes hot water from the water heater with cold water to more precisely regulate the temperature of hot water supplied to fixtures. If you aren't sure if your plumbing system is equipped with properly installed and adjusted Thermostatic Mixing Valves at each point where hot water is used, contact a qualified person for more information. ■

Step 2:

Verify that the location is appropriate

Before installing your water heater, ensure that:

1 The water heater will be:
- Installed indoors close to the center of the plumbing system.
- In a suitable drain pan piped to an adequate floor drain or external to the building (See page 8, figure 6).
- In an area that will not freeze
- In an area that is suitable for installing the water heater vertically

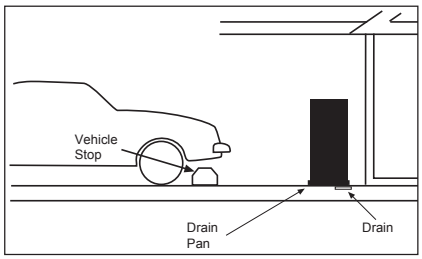
2 The location has adequate space (clearances) for periodic servicing.

3 The floor can support the weight of a full water heater.

4 Your area is not prone to earthquakes. If it is, use special straps as required by local building codes.

NOTICE: The state of California requires bracing, anchoring, or strapping the water heater to avoid its moving during an earthquake. Contact local utilities for code requirements in your area, visit http://www.dsa.dgs.ca.gov, or call 1-916-445-8100 and request instructions. Other locations may have similar requirements. Check with your local and state authorities.

5 The location is not prone to physical damage by vehicles, flooding, or other risks.



In a garage, install a vehicle stop to avoid water heater damage.

6 Avoid locations such as attics, upper floors, or where a leak might damage the structure or furnishings. Due to the normal corrosive action of water, the tank will eventually leak. To minimize property damage from leaks, inspect and maintain your water heater in accordance with this manual's instructions. Install a suitable drain pan under the water heater piped to an adequate drain. Inspect the drain pan, pipes, and surrounding area regularly and fix any leaks found. Drain pans are available in local hardware stores. Leaks are frequently in the plumbing system itself and not the water heater.

Step 3:

Removing the old water heater

1 Read each installation step and decide if you have the necessary skills to install the water heater. Only proceed if you can safely perform the work. If you are not comfortable, have a qualified person perform the installation.

2 Locate the water heater's circuit breaker and turn it OFF (or remove the circuit's fuses).

3 On the old water heater, remove the electrical junction box access panel. Using a non-contact circuit tester, check the wiring to make certain the power is OFF.

⚠ WARNING! Working on an energized circuit can result in severe injury or death from electrical shock.

4 Disconnect the electrical wires.

5 Open a hot water faucet and let the hot water run until it is cool (This may take 10 minutes or longer).

Let the hot water run until it is cool.

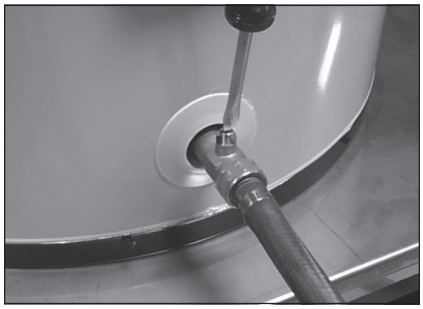
⚠ WARNING! Be sure the water runs cool before draining the tank to reduce the risk of scalding.

6 Connect a garden hose to the drain valve and place the other end of the hose in a drain, outside, or a bucket. (Note that sediment in the bottom of the tank may clog the valve and prevent it from draining. If you can't get the

tank to drain, contact a qualified person.)

7 Turn the cold water supply valve OFF.

8 Open the drain valve on the water heater.



Draining the old water heater.

9 Also open a hot water faucet to help the water in the tank drain faster.

10 When the tank is empty, disconnect the Temperature & Pressure (T&P) Relief Valve discharge pipe. You may be able to reuse the discharge pipe, but do not

Removing the T&P Relief Valve discharge pipe.

reuse the old T&P Relief Valve. A new T&P Relief Valve comes installed on your water heater (or on some models, is in the carton with the water heater).

11 Disconnect the water pipes. Many water pipes are connected by a threaded union which can be disconnected with wrenches. If you must cut the water pipes, cut the pipes close to the water heater's inlet and outlet connections, leaving the water pipes as long as possible. If necessary, you can make them shorter later when you install the new water heater.

12 Remove the old water heater.

⚠ **WARNING! Use two or more people to remove or install water heater. Failure to do so can result in back or other injury.**

Step 4:

Installing the new water heater

1 Completely read all instructions before beginning. If you are not sure you can complete the installation, DO NOT RETURN THIS UNIT TO THE STORE. Seek assistance from any of the following sources:

- Professional Installation is available for this product and the work is guaranteed. Call your local hardware store to have this water heater installed.
- Schedule an appointment with a qualified person to install your water heater.
- Call our Technical Assistance Hotline which is listed on the water heater's warranty sheet.

2 Install a suitable drain pan that is piped to an adequate drain.

3 Set the water heater in place taking care not to damage the drain pan.

NOTICE: Most codes require setting the water heater in a suitable drain pan piped to an adequate drain. The drain pan helps avoid property damage which may occur from condensation or leaks in the piping connections or tank. The drain pan must be at least two inches wider than the diameter of the water heater. Install the drain pan so the water level is limited to a maximum depth of 1-3/4".

4 Verify that the water heater is set in place properly. Check that:

- The T&P Relief Valve will not be in contact with any electrical parts.
- There is adequate space to install the T&P Relief Valve discharge pipe and that it can be piped to a separate drain (and not into the drain pan).
- There is adequate access and space around the water heater for future maintenance.

DO NOT CONNECT ELECTRICAL WIRING UNTIL YOU ARE INSTRUCTED TO DO SO.

NOTICE: Connecting electrical power to the tank before it is completely full of water (water must run FULL STREAM from a hot water tap for a full three minutes) will cause the upper heating element to burn out.

Step 5:

Connect the Temperature and Pressure (T&P) Relief Valve/Pipe

Most T&P Relief Valves are pre-installed at the factory. In some cases, they are shipped in the carton and must be installed in the opening marked and provided for this purpose and according to local codes.

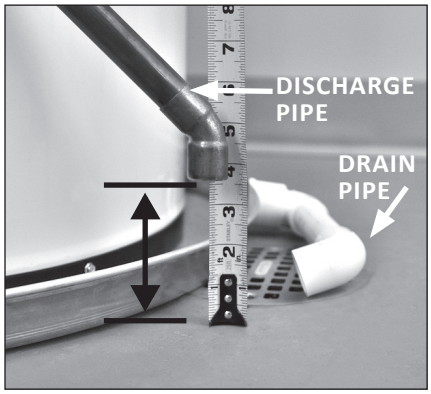
⚠ WARNING! To avoid serious injury or death from explosion, install a T&P Relief Valve according to the following instructions:

1 If your water heater does not have a factory installed T&P Relief Valve, install the new T&P Relief Valve that came with your water heater. Do not reuse an old T&P Relief Valve. Install a T&P Relief Valve discharge pipe according to local codes and the following guidelines:

- The discharge pipe should be at least 3/4" inside diameter and sloped for proper drainage. Install it to allow complete drainage of both the T&P Relief Valve and the discharge pipe.
- The discharge pipe must withstand 250°F (121°C) without distortion. Use only copper or CPVC pipe. Do not use any other type of pipe, such as PVC, iron, flexible plastic pipe, or any type of hose.

The T&P Relief Valve discharge pipe must be installed properly and piped to an adequate drain.

- Terminate the discharge pipe a maximum of six inches above a floor drain or outside the building. Do not drain the discharge pipe into the drain pan; instead pipe it separately to an adequate drain. In cold climates, terminate the discharge pipe inside the building to an adequate drain. Outside drains could freeze and obstruct the drain line. Protect the drain from freezing.



The end of the T&P Relief Valve discharge pipe must stop no more than six inches above a floor drain or outside.

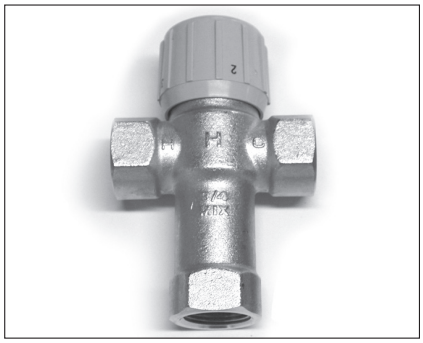
- Do not place any valve or other restriction between the tank and T&P Relief Valve. Do not cap, block, plug, or insert any valve between the T&P Relief Valve and the end of the discharge pipe. Do not insert or install any reducer in the discharge pipe.

Step 6:

Install shutoff and tempering valves

1 If one is not already installed, install a manual shutoff valve in the cold water line that supplies the water heater. Install the shutoff valve near the water heater so that it is readily accessible. Only use valves that are compatible with potable water. Use only full-flow ball or gate valves. Other types of valves may cause excessive restriction to the water flow.

2 Install a Thermostatic Mixing Valve at each point-of-use (for example, kitchen sink, bathroom sink, bath, shower). Consult the valve manufacturer's instructions or a qualified person.



Install Thermostatic Mixing Valves at each point where hot water will be used.

⚠ WARNING! Even if the water heater's thermostat(s) are set to a relatively low temperature, hot water can scald. Install Thermostatic Mixing Valves at each point-of-use to reduce the risk of scalding. (See page 4.)

3 For water heaters that are fed by a solar water heating system (or any other pre-heating system), always install a Thermostatic Mixing Valve or other temperature limiting device in the inlet water supply line to limit water supply inlet temperature to 120°F. Solar water heating systems can supply water with temperatures exceeding 170°F and may result in water heater malfunction.

⚠ WARNING! Hot water provided by solar heating systems can cause severe burns instantly, resulting in severe injury or death (see page 4).

Step 7:

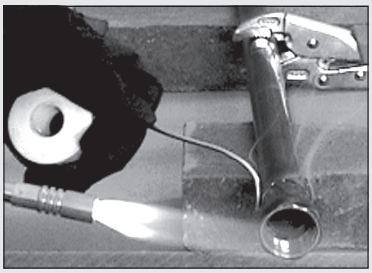
1 ## Connect the water supply

Determine the type of water pipes in your home. Most homes use copper water pipes, but some use CPVC or cross-linked polyethylene (PEX). Use fittings appropriate for the type of pipe in your home. Do not use iron or PVC pipe – they are not suitable for potable water.

2 Connect the cold water supply using 3/4 inch National Pipe Thread "NPT" to the fitting marked "C" (COLD). For ease of removing the water heater for service or replacement, connect the water pipes with a coupling called a union. We recommend using a dielectric-type union (available at local hardware stores). Dielectric unions can help prevent corrosion caused by tiny electric currents common in copper water pipes and can help extend the life of the water heater.

IF YOU HAVE COPPER PIPES:

If your home has copper water pipes, you can solder the water pipe connections or use compression fittings which don't require soldering. Compression fittings are easier to install than soldering pipe. Check with local plumbing officials to determine what types of pipe materials are suitable for your location. Do not use lead-based solder.



NOTICE: Do not solder pipes while they are attached to the water heater. The water heater's inlet and outlet connections contain non-metallic parts which could be damaged. The proper way to connect the water heater to copper water pipes is as follows:

- Solder a short length of pipe (about a foot or so) to a threaded adapter using only 95/5 tin-antimony or equivalent solder. Attach the threaded adapters to the water heater's connections (using thread sealant tape or pipe joint compound). Connect the home's water pipes by soldering, keeping the connections at the water heater cool with wet rags.

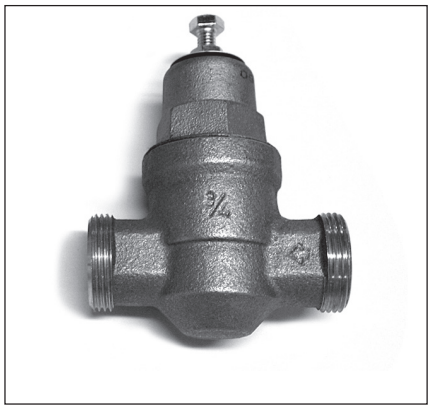
NOTICE: Most water heater models contain energy saving heat traps in the inlet and outlet connections to avoid the circulation of hot water within the pipes. Do not remove the heat traps.

3 Connect the hot water supply using 3/4 inch NPT to the fitting marked "H" (HOT). Follow the same connection guidelines as for the cold water supply.

4 Install insulation (or heat tape) on the water pipes especially if the indoor installation area is subject to freezing temperatures. Insulating the hot water pipes can increase energy efficiency.

5 Double check to make sure the hot and cold water pipes are connected to the correct hot and cold water fittings on the water heater.

6 If needed, install (or adjust) the home's Pressure Reducing Valve to 50-60 psi and install a Thermal Expansion Tank.



A Pressure Reducing Valve is required if your home's water pressure is above 80 psi.

The Thermal Expansion Tank should be pressurized with air, to match the home's incoming water pressure.

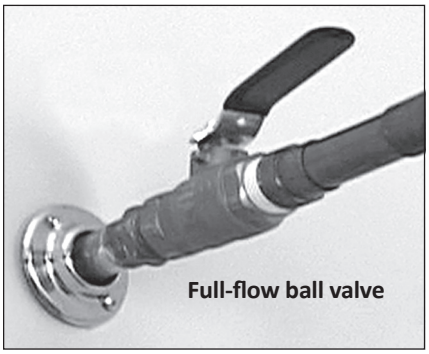
Step 8:

Verify connections and completely fill tank

To remove air from the tank and allow the tank to fill completely with water, follow these steps:

1 Remove the aerator at the nearest hot water faucet. This allows any debris in the tank or plumbing system to be washed out.

2 Turn the cold water supply back on.



Fully open the cold water supply valve.

3 Open a hot water faucet and allow the water to run until it flows with a full stream.

4 **Let the water run full stream for three full minutes.**

5 Close the hot water faucet and replace the aerator.

6 Check inlet and outlet connections and water pipes for leaks. Dry all pipes so that any drips or leaks will be apparent. Repair any leaks. Almost all leaks occur at connections and are not a tank leak.

NOTICE: The tank must be completely empty of air and full of water before connecting electrical power to avoid "Dry Firing." Dry Firing may result in the upper element burning out. This is a common installation mistake. After you make the water connections, but before you connect the electrical power, open a hot water faucet and let the water run full until all the air is removed. Let the "hot" water run full for three minutes or longer before connecting any electrical wires. A Dry Fired upper heating element is an installation error and is not covered under warranty.

If Dry Firing occurs, replace the upper heating element according to the instructions on page 26.

Step 9:

Make electrical connections

⚠ WARNING! Working on an energized circuit can result in severe injury or death from electrical shock.

NOTICE: Do not turn electrical power on unless you are sure all of the air is out of the tank and the tank is completely full of water. If power is applied before the tank is completely full of water, the upper element will burn out (Dry Fire).

1 Be sure the electrical power to the water heater is turned OFF at the circuit breaker panel (or remove the circuit's fuses).

2 Using a non-contact circuit tester, check the wiring to make certain the power is OFF.

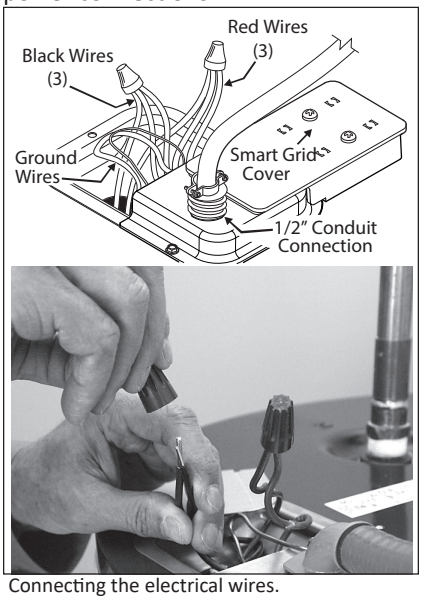
3 Check the water heater's data plate and ensure that the home's voltage, wiring size (ampacity) and circuit breaker rating and type are correct for this water heater. Refer to the wiring diagram located on the water heater for the correct electrical connections. Ensure that wire sizes, type, and connections comply with all applicable local codes. In the absence of local codes, follow NFPA-70 and the current edition of the National Electric Code (NEC).

4 Remove the cover on the electrical junction box on the top of the water heater.

The water heater's electrical requirements can be determined from the data plate.

5 Install wiring in an approved conduit (if required by local codes). Use a UL listed or CSA approved strain relief to secure the electrical wiring to the water heater.

6 Connect the ground wire to the green ground screw. Connect the home's two power wires to the water heater's four power wires (black to black, red to red). Use suitable wire nuts or other approved means to make the power connections.



Connecting the electrical wires.

7 Replace the junction box cover and secure with the screws provided.

⚠ WARNING! Be sure cover is secured to reduce the risk of fire and electric shock.

Step 10:

Adjusting the Temperature

With the installation steps completed, you may adjust the water heater's temperature setting if desired.

1 Set the thermostat(s) to desired temperature. The thermostat(s) on this water heater have been factory set to approximately 120°F to reduce the risk of scald injury. You may wish to set a higher temperature to provide hot water for automatic dishwashers or laundry machines, to provide more hot water capacity, and to reduce bacterial growth. Higher tank temperatures (140° F) kill bacteria that cause a condition known as "smelly water" and can reduce the levels of bacteria that cause water-borne diseases.

⚠ WARNING! Higher temperatures increase the risk of scalding, but even at 120°F, hot water can scald (see page 4).

If you increase the water heater's temperature setting, install Thermostatic Mixing Valve(s) at each point-of-use to reduce the risk of scalding.

Adjust Thermostatic Mixing Valves at each point-of-use to 120°F or lower.

To adjust the water heater's thermostat:

- Be sure the electrical power to the water heater is turned OFF at the circuit breaker panel (or remove the circuit's fuses).

⚠ WARNING! Working near an energized circuit can result in severe injury or death from electrical shock. Check wires with a circuit tester to make sure power is off.

- Remove the upper and lower access panels and fold away the insulation.
- Turn the water temperature dial clockwise (>>) to increase the temperature, or counter clockwise (<<) to decrease the temperature. Adjust thermostat to the desire temperature set-point.

NOTE: Your water heater has only one thermostat, it is located behind the upper access panel.

- Fold the insulation back in place and replace the access panels.

⚠ WARNING! Be sure panels are secured to reduce the risk of fire and electric shock.

2 Turn the electric power back on.

3 Wait for the water to heat up. It may take several hours for a tank of cold water to heat up. If you have no hot water after two hours, refer to the Troubleshooting Section (see page 21).

⚠ WARNING! If you have increased the temperature setting and the Thermostatic Mixing Valves are not set properly (or not installed) you could scald yourself while checking the temperature.

4 Check water temperature at several points of use in your home (for example, bathtub faucet, shower, or lavatory sink) and adjust the Thermostatic Mixing Valves as needed. If you aren't sure how to adjust the Thermostatic Mixing Valve settings, or aren't sure if you have Thermostatic Mixing Valves, contact a qualified person.

Step 11:

Operation

The water heater is now ready for normal operation. To keep your water heater working safely and efficiently and extend its life, perform maintenance according to the schedule on page 25.

Vacation

To save energy, lower the temperature setting on the thermostat(s) if you plan to be gone for an extended time. Follow the instructions in Step 10 for adjusting the thermostat to a lower temperature setting before you leave and to properly raise the temperature setting when you return.

⚠ CAUTION! Hydrogen gas builds up in a hot water system when it is not used for a long period (two weeks or more). Hydrogen gas is extremely flammable. If the hot water system has not been used for two weeks or more, open a hot water faucet for several minutes at the kitchen sink before using any electrical appliances connected to the hot water system. Do not smoke or have an open flame or other ignition source near the faucet while it is open.

Need Assistance?

Call our Technical Assistance Hotline which is listed on the water heater's warranty sheet.
We can help you with installation, operation, troubleshooting, or maintenance.
Before you call, write down the model and serial number from the water heater's data plate.

The Electronic Thermostat

IMPORTANT: The Grid Communication Adaptor must be removed before attempting to access the thermostat. NOTE: for the Electronic Thermostat (ET) changes to remain in effect the Grid Communication Adaptor must not be reconnected, also read the "Risks During Operation" under the "Important Safety Information" section. If the instructions are not clear, contact a qualified service technician.

Water Temperature Adjustment

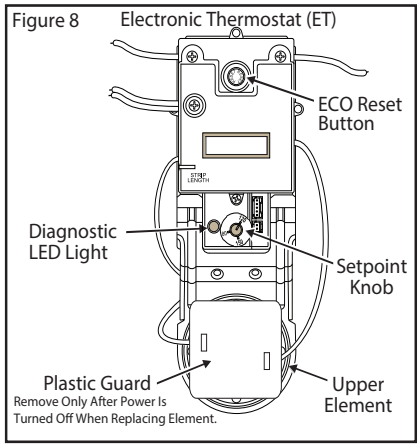
The Grid Communication Adaptor is intended to serve as the primary interface for operating the water heater; however, the Electronic Thermostat (ET) may control the water heater in the absence of the Grid Communication Adaptor. The Electronic Thermostat consists of an electronics box that contains a low voltage power supply, the thermostat set point knob, relays to switch between the upper and lower heating elements, one control thermistor, a connector for the lower element control thermistor, microelectronics to convert the thermistor signals and perform switching and other logic functions, and a connector to tie the Electronic Thermostat (ET) to the Grid Communication Adaptor located on the top of the water heater. The majority of the self-diagnostics are located in the Electronic Thermostat (ET), including the dry-fire protection intelligence. The thermostat circuit is designed so that when the upper heating element calls for heat, the power is directed to that element even if the lower element is also calling for heat.

Diagnostic LED Light

The Green/Red LED light indicates the status of the electronic thermostat (See Figure 8).

⚠ WARNING! Electrical Shock Hazard
Do not remove the plastic guard from over wiring.
Do not touch electrical wiring.
Failure to do so can result in death or electrical shock.

Figure 8 Electronic Thermostat (ET)



• Green LED will signal normal operation. The green LED will blink 2 times per second to indicate that power is applied to the upper heating element and at a faster rate (4 times per second) to indicate that the lower heating element is powered.

• Red LED will flash error codes. If a fault is detected by the electronic thermostat, the LED light indicator will use the red LED to indicate the fault detected. The flash code sequence is to consist of 1/2 second flashes of the red LED each separated by a 1/2 second off period.

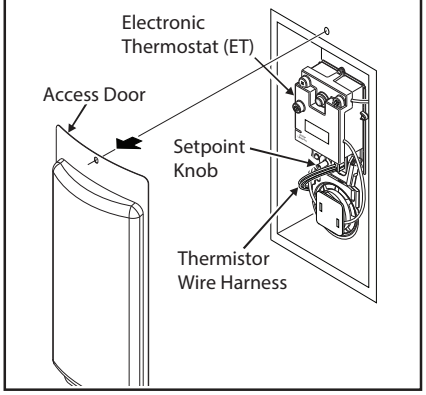
The number of flashes indicates the fault code number.
(See diagnostic code chart section in this manual).

After the last 1/2 second "on" period, the LED will remain off until a total of 5 seconds has elapsed for the fault indication cycle (there is a 5 seconds delay before the fault flash pattern repeats).

After the 5 seconds are completed, the fault indication cycle is repeated starting with the first 1/2 second-flash. The flash sequence will be repeated as long as the fault remains. Only one fault can be declared at a time. NOTE: the green LED is turned off when a fault code is being displayed, even though the heater may be operating in limp mode with an element on. See diagnostic code chart section in this manual.

Adjust the thermostat to the desired temperature setting using the "Setpoint Knob". NOTE: If the system diagnostic yields any codes, reference the Diagnostic Code section in this manual.

Figure 9



⚠ WARNING! Electrical Shock Hazard
Do not remove the plastic guard from over wiring.
Do not touch electrical wiring.
Failure to do so can result in death or electrical shock.

Smart Grid Technology

The electric Smart Grid will enable significant improvements in electric power reliability and quality through reduction of peak power demand, while providing consumers the knowledge and ability to manage their energy consumption and utility costs.

According to the Department of Energy (DOE), since 1982 the growth in peak electricity demand has exceeded power transmission growth. This has caused more frequent blackouts and service interruptions, as well as an increase in the costly reserve capacity the power grid requires to meet higher peak demands. The increased demand for electrical power across the nation has also led to higher peak utility costs.

Smart appliances are one way to help mitigate this problem. By using advanced digital communication technologies, smart appliances will be able to communicate with local power company or home energy management systems, and react accordingly to save energy and money. For example, during peak demand periods the water heater may pause or delay its power consumption and thus reduce the load on the smart utility grid. Additionally, smart appliances will also communicate with consumers to let them know how much energy they are consuming. This will eventually allow consumers to control their appliances, manage energy usage, and to ultimately save money.

Smart Grid Control (Where Available)

Where available, Grid Communication Adaptors may be supplied by the local power company or purchased from leading retailers. Please contact your local power company for more information.

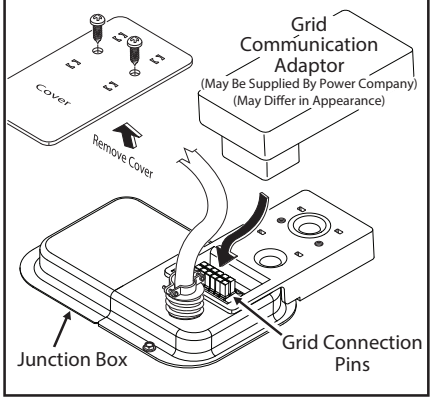
To activate Smart Grid Control, remove the cover over the grid connection pins and plug in the grid communication adaptor. See Figure 10. NOTE: use only approved grid communication adaptors. This will enable the power company to communicate the peak demand periods for the water heater's power usage.

After this connection has been made, this will enable and allow acceptance of the power company communication of grid management requests. Unplugging will disable this feature and will allow the water heater to ignore grid management requests.

NOTE: Smart Grid will be disabled when the Grid Communication Adaptor is disconnected from the junction box wiring harness.

⚠ WARNING! Electrical Shock Hazard
Disconnect power before servicing.
Replace all parts and panels before operating.
Failure to do so can result in death or electrical shock.

Figure 10



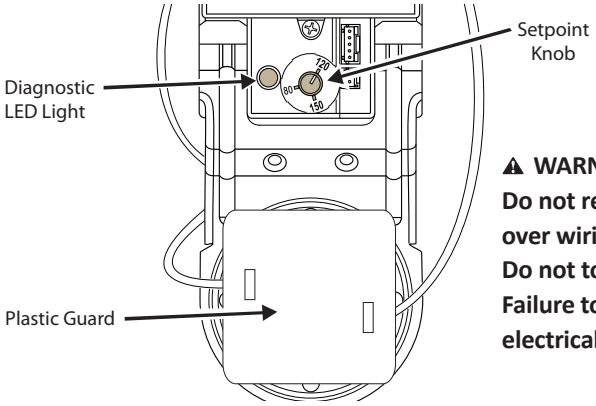
Smart Grid Connection

DIAGNOSTIC CODE CHART Electronic Thermostat (ET)

IMPORTANT: Before attempting to adjust the thermostat, read the “Adjusting The Temperature” section page 15.

The Electronic Thermostat (ET) is designed so that it may control the water heater without the Grid Communication Adaptor being operated, see page 17.

If the instructions are not clear, contact a qualified service technician.



⚠ WARNING! Electrical Shock Hazard
Do not remove the plastic guard from over wiring.
Do not touch electrical wiring.
Failure to do so can result in death or electrical shock.

(ET) DIAGNOSTIC LED	INDICATES	CORRECTIVE ACTION*
LIGHT ON (Green Flash)	Normal operation.	None
NO LIGHT	No electrical power to control board or diagnostic LED light burned out.	1. Check for blown fuses or tripped breaker. 2. If diagnostic LED light is burned out, replace Electronic Thermostat (ET).
1 FLASH (Red)	Dry-fire, electrical power on with the tank not completely full of water.	1. Turn off electrical power at breaker, add water. 2. Turn on electrical power at breaker. 3. See “Routine Maintenance” on page 25.
2 FLASHES (Red)	Water temperature exceeded high limit.	1. Turn off electrical power at the breaker. 2. Press the reset button (see Figure 8). 3. Turn on electrical power at breaker. 4. If error returns call a service technician for assistance.
3 FLASHES (Red)	Upper thermistor sensor failure. (Note: Upper thermistor sensor is part of the ET)	1. Turn off electrical power at the breaker. 2. Replace Electronic Thermostat (ET). 3. Turn on electrical power at breaker.
4 FLASHES (Red)	Upper element circuit failure. (Note: Lower element is still operable)	1. Turn off electrical power at the breaker. 2. Check element circuits for resistance of 5-25 ohms (replace if required). 3. Check wires at elements and Electronic Thermostat (ET) for damage. If this 4 flashes condition continues, replace Electronic Thermostat (ET). 4. Turn on electrical power at breaker.
5 FLASHES (Red)	Lower element circuit failure. (Note: Upper element is still operable)	1. Turn off electrical power at the breaker. 2. Check element circuits for resistance of 5-25 ohms (replace if required). 3. Check wires at elements and Electronic Thermostat (ET) for damage. If this 5 flashes condition continues, replace Electronic Thermostat (ET). 4. Turn on electrical power at breaker.
6 FLASHES (Red)	Electronic Thermostat (ET) failure (Internal processor).	1. Turn off electrical power at the breaker. Now turn on electrical power to see if error clears. If error has not cleared, replace Electronic Thermostat (ET). 2. Turn on electrical power at breaker.
7 FLASHES (Red)	Lower thermistor sensor failure.	1. Turn off electrical power at the breaker. 2. Check electrical connections at Electronic Thermostat (ET). 3. Replace Lower Thermistor Sensor. 4. Turn on electrical power at breaker.
8 FLASHES (Red)	Electronic Thermostat (ET) error	1. Turn off electrical power. 2. Check wiring at Electronic Thermostat (ET) for damage. 3. Turn on electrical power at breaker. 4. If this code flashes condition continues, replace the Electronic Thermostat (ET).

(ET) DIAGNOSTIC LED	INDICATES	CORRECTIVE ACTION*
9, 10, 11 or 12 FLASHES (Red)	Electronic Thermostat (ET) error	1. Turn off electrical power. 2. Check wiring at Electronic Thermostat (ET) for damage. 3. Turn on electrical power at breaker. 4. If this code flashes condition continues, replace the Electronic Thermostat (ET).

*These instructions are brief and intended as guidance for a qualified person. If you lack the necessary skills to perform these procedures call our Technical Assistance Hotline which is listed on the water heater's warranty sheet.

⚠ WARNING! Working near an energized circuit can result in severe injury or death from electrical shock.

⚠ WARNING! When you are finished, be sure all covers are secured to reduce the risk of fire and electric shock.

No Hot Water

The most likely reasons for an electric water heater to produce NO hot water are:

- No electric power—a common problem with new installations
- Burned out upper element (Dry Fired) — a common problem with new installations
- Tripped Energy Cut Off (red button on upper thermostat)
- The water heater's inlet and outlet connections are reversed (usually only in new installations)
- Broken upper thermostat (or wiring)
- A leak in the hot water side of the plumbing system that exceeds the water heater's heating capacity and makes it appear that the water heater is producing little to no hot water

Follow these steps to diagnose and correct common electrical problems:

1 **Check the electric power to the water heater.** No hot water is often caused by a problem with the home's electrical wiring or circuit breakers. You'll need a non-contact circuit tester. Follow these guidelines:

- Locate the water heater's circuit breaker and turn it off (or remove the circuit's fuses).
- Locate the electrical junction box on top of the water heater and remove the cover.
- Identify the two power wires. The power wires are usually black/black or black/red—the green or copper wire is the ground wire.

Use a non-contact circuit tester to check for electrical power.

- Turn the circuit breaker back on (or install the fuses) and check the power on both incoming power wires using a non-contact circuit tester.
- Turn the power off and replace the cover on the electrical junction box.

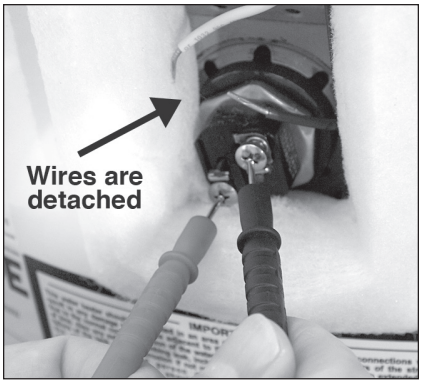
If the water heater is not getting power, contact a qualified person to have your home's wiring or circuit breakers checked.

2 **Check the upper heating element.** If the water heater is getting electrical power, check to see if the upper heating element has burned out. If the upper element is burned out, you'll have no hot water. To check the upper element, you'll need a multimeter capable of reading resistance.

- Turn the power OFF at the circuit breaker or remove fuses.
- Remove the upper access panel.
- Remove the insulation to access the upper thermostat and heating element.

3 **Check the top two screws of the upper thermostat using a non-contact circuit tester and confirm that power is off (screw terminals 1 and 3 in photo on next page).**

- With the electrical power off, remove the two power wires from the upper heating element.



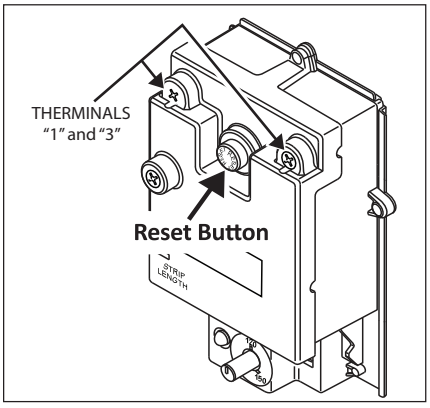
Use a multimeter to check the resistance of the upper heating element.

4 **Check the resistance of the upper heating element using a multimeter.** Measure the resistance between the two screw terminals on the upper heating element. A good element will have a resistance ranging between 5 and 25 Ohms. If the resistance is:

Outside this range. Replace the element (see the Routine Maintenance section on page 26). On a new water heater, a burned out upper heating element is almost always caused by turning the power on before the tank was completely full of water (Dry Fire). (See Step 8 in the Installation section.)

Within this range. Reattach the power wires, making sure the wires are in good condition and the connections are clean and tight. Next, check the following:

5 **Check/Reset Energy Cut Off (ECO) Button.**



Energy Cut Off (ECO) button

The Energy Cut Off (ECO) shuts off power to the water heater's elements if the temperature of the water in the tank gets too hot. If the ECO has tripped, you'll have no hot water. A tripped ECO can usually be reset, but you should have a qualified person investigate the cause of the overheating and repair the problem. Do not turn the power back on until the cause of the overheating has been identified and repaired.

To check the Energy Cut Off (ECO)

- Turn off the power to the water heater.

⚠ WARNING! Working near an energized circuit can result in severe injury or death from electrical shock. Check power wires in the electrical junction box with a non-contact circuit tester to make sure power is off.

- Press the red ECO reset button (see photo above).
- The ECO was tripped if you hear a click when it is reset. In most cases, a tripped ECO indicates that the tank overheated due to a problem with one of the elements or thermostats—have a qualified person check the upper and lower elements and thermostats and replace if necessary.
- The ECO was not tripped if you didn't hear a click. In that case, the upper thermostat should be checked by a qualified person.
- Replace the insulation and the upper access panel.

WARNING! Be sure all covers are secured to reduce the risk of fire and electric shock.

Insufficient Hot Water or Slow Hot Water Recovery

⚠ WARNING! Because of the increased risk from scalding, if you set the water heater's thermostat(s) higher than 120°F, Thermostatic Mixing Valves at each point-of-use are particularly important (see page 4).

If the hot water is simply not warm enough, there are several possible causes:

- Faulty Thermostatic Mixing Valve in a faucet or shower control (check other faucets in the house for hot water)
- One (or both) of the thermostats set too low
- Water heater's capacity too small (or usage too high)
- Reversed plumbing connections or melted dip tube (usually found soon after new installation)
- Plumbing leak
- Bad lower heating element (or lower thermostat)
- Low supply voltage

Thermostatic Mixing Valves. If the hot water is simply not warm enough, make sure the faucet you are checking doesn't have a defective Thermostatic Mixing Valve. Many shower controls now have built-in mixing valves. If these devices fail, they can reduce the amount of hot water the shower or faucet delivers even though there is plenty of hot water in the tank. Always check the water temperature at several faucets to make sure the problem is not in a faucet or shower control.

Thermostats set too low. If the water temperature at several faucets is too cool, adjust the thermostat(s) according to the instructions in Step 10 of the Installation section of this manual.

Undersized water heater. If your water heater runs out of hot water too quickly, it may be too small for your needs. If the water heater is old, consider replacing it with a larger model. If the water heater is in good condition, you may be able to meet your family's hot water needs with the existing water heater by installing Thermostatic Mixing Valves at each point-of-use and then turning the thermostat(s) to a higher setting. See page 15, step 10.

You can also reduce your home's hot water needs by washing clothes in cold water, installing flow restrictors on shower heads, repairing leaky faucets, and taking other conservation steps.

Reversed connections or melted dip tube. Check the hot and cold connections and make sure your home's hot water pipe is connected to the hot water outlet on the water heater. Usually, reversed connections are found soon after the installation of a new unit. If copper pipes were soldered while they were attached to the water heater, the dip tube may have melted. The dip tube is a long plastic tube inside the tank attached to the cold water inlet. If the dip tube has melted, it can be replaced by removing the cold water inlet connection, removing the old dip tube and installing a new one.

Plumbing leak. Even a small leak in the hot water side of the home's plumbing system can make it appear that the water heater is producing little to no hot water. Locate and repair the leak.

Lower heating element not working. If the lower heating element (or, more

rarely, the lower thermostat) is not working, you will have some hot water but not as much as before. Because the lower element does most of the work, the lower element usually wears out before the upper element. Replace the lower element and/or thermostat if necessary (see page 26-27).

Temperature Too High

If the water temperature is too hot:

- Install or adjust the Thermostatic Mixing Valves for each point-of-use (see manufacturer's instructions), or
- Adjust the thermostat(s) on the water heater (see Step 10 in the installation section of this manual).

A nonfunctioning thermostat or a shorted heating element can cause extremely hot water. If the Temperature and Pressure Relief Valve (T&P Valve) releases large amounts of very hot water, it is likely due to a shorted heating element, or more rarely a nonfunctioning thermostat, or the thermostat does not fit snuggly against the tank. Very high water temperatures can also cause the Energy Cut Off (ECO) to trip (see page 27). Turn power off until this problem is fixed.

Low Water Pressure

Check both the cold and hot water at a sink to determine if the lower pressure is only on the hot water side. If both hot and cold faucets have low pressure, call your local water utility. If the low pressure is only on the hot water side, the primary causes of this are:

- Melted heat traps or dip tube. Soldering copper pipes while they are connected to the water heater can melt the heat traps inside the hot and cold water connections or the dip tube (cold water side). Melted heat traps or a melted dip tube can restrict the flow of hot water. If that's the case, replace the heat traps or dip tube.
- Partially closed supply valve. Open the water heater's supply valve fully.

Drips from T&P Relief Valve Discharge Pipe

A small amount of water dripping from the Temperature and Pressure (T&P) Relief Valve usually means the home's water pressure is too high or you need a properly sized and pressurized Thermal Expansion Tank. Refer to Step 1 in the Installation section of this manual for more information. A large amount of hot water coming from the T&P discharge pipe may be due to the tank overheating.

⚠ WARNING! Do not cap or plug the T&P relief valve or discharge pipe, and do not operate the water heater without a functioning T&P Relief Valve - this could cause an explosion.

Water pressure too high. High water pressure can cause the T&P Relief Valve to drip. Install a Pressure Reducing Valve (PRV) on the main cold water supply line. Adjust the PRV to between 50 and 60 psi.

Thermal Expansion Tank. Install a Thermal Expansion Tank. If a Thermal Expansion Tank is already installed and the T&P Relief Valve discharge pipe drips, the Thermal Expansion Tank may be pressurized to the wrong pressure or the internal bladder may be defective. Refer to the instructions that came with the Thermal Expansion Tank for more information.

Debris. In rare cases, debris can stick inside the T&P Relief Valve preventing the valve from seating fully. In that case, the T&P Relief Valve discharge pipe will drip. You may be able to clear debris from the T&P Relief Valve by manually operating the valve, allowing small quantities of water to flush out the debris. Refer to the T&P Relief Maintenance section of this manual.

⚠ WARNING! When manually operating the temperature-pressure relief valve, make sure that no one is in front of or around the discharge outlet. The water may be extremely hot and could cause severe burns. Also ensure that the water discharge will not cause property damage.

If the water pressure is between 50 and 60 psi, a Thermal Expansion Tank is installed and properly pressurized, and the valve has been cleared of any debris, and it still drips, the valve may be broken—have a qualified person replace the T&P relief valve.

Water Odor

Harmless bacteria normally present in tap water can multiply in water heaters and give off a "rotten egg" smell. Although eliminating the bacteria that causes "smelly water" with a Chlorination system is the only sure treatment, in some cases, the standard anode rod that came with your water heater can be replaced with a special zinc anode rod which may help reduce or eliminate the odor. Contact a qualified person.

NOTE: To protect the tank, an anode rod must be installed in the water heater at all times or the warranty is void.

In cases where the "rotten egg" smell is pronounced, you can raise the tank temperature to 140°F in order to reduce bacteria growth in the tank.

⚠ WARNING! Because higher temperatures increase the risk of scalding, if you set the thermostat(s) higher than 120°F, Thermostatic Mixing Valves at each point-of-use are particularly important (see page 4). ■

Routine Maintenance

Routine maintenance will help your water heater last longer and work more efficiently. If you can't perform these routine maintenance tasks yourself, contact a qualified person.

Water Heater Maintenance

After the first six months, drain and flush the water heater and inspect the anode rod. Depending on the hardness of your water, repeat this process at least annually, or more frequently if needed. From time to time you may need to replace a heating element or a thermostat. All three maintenance tasks are described below.

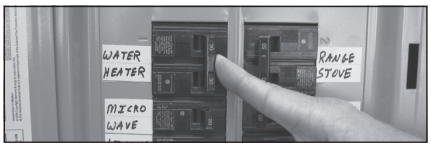
Draining and Flushing the Water Heater

Tap water contains minerals that can form lime deposits on heating elements or sediment in the bottom of the tank. The amount of lime deposits or sediment depends on the hardness of your tap water. The rate at which sediment builds up depends on water quality and hardness in your area, the temperature settings, and other variables. We recommend draining and flushing the water heater after the first six months of operation to determine the amount of sediment build up. Draining sediment extends the life of the tank, heating elements, and drain valves.

- In areas with very hard water, remove and check the heating elements whenever you drain the tank. If you have heavy lime deposits on heating elements, you will need to replace them more often.
- Sediment may form large masses that can prevent the tank from draining. Have a qualified person use a de-liming agent suitable for potable water to remove the sediment buildup.
- In most cases, it is easier and cheaper to replace lime-encrusted elements than trying to remove heavy lime deposits.

To drain and flush the tank:

1 Locate the water heater's circuit breaker and turn it OFF (or remove the circuit's fuses).



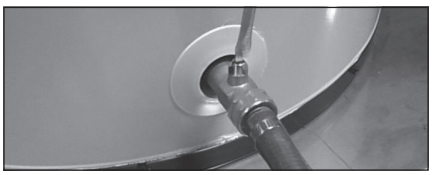
2 Open a hot water faucet and let the hot water run until it is cool.

⚠ WARNING! Be sure the water runs cool before draining the tank to reduce the risk of scalding.

3 Connect a garden hose to the drain valve and place the other end of the hose in a drain, outside, or in buckets.

4 Turn the cold water supply valve OFF.

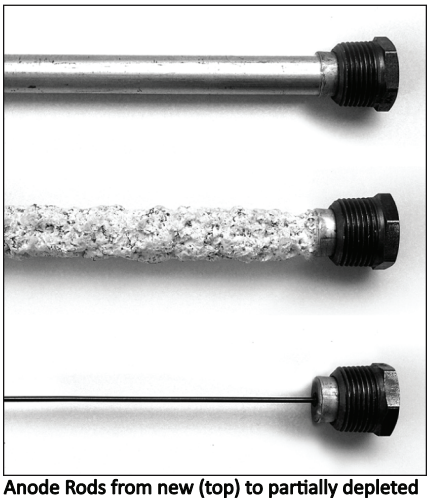
5 Open the drain valve on the water heater.



6 Open a hot water faucet to help the water in the tank drain faster.

NOTICE: DO NOT turn electrical power back on unless the tank is completely full of water.

7 Remove and inspect the anode rod (see Repair Parts Illustration on back cover for location of the anode rod). Replace the anode rod if it is depleted. Turn power off. Run hot water until it's cool. Turn cold water supply valve off. Open a hot water faucet to depressurize tank. Locate and remove the black plastic cover marked "Anode Rod". Use a "key hole" saw or similar tool to remove the foam insulation covering the anode rod. Once the anode rod is exposed, use a 11/16" socket wrench with an extension to remove it. Inspect the anode rod and replace if depleted. Apply Thread sealant tape or pipe joint compound and reinstall the anode rod tightly. It is not necessary to replace the foam removed to access the anode. Turn cold water supply valve on. When hot water runs full, close hot water faucet. Check for leaks and repair if necessary. Turn power on.



Anode Rods from new (top) to partially depleted (middle) to fully depleted stage (bottom)

Anode Rod. The anode rod is a sacrificial metal rod that helps reduce corrosion and premature failure (leaks) in the tank. The anode rod is a consumable item. Inspect the anode rod after the first six months of operation when you drain and

flush the tank. Replace the anode rod if it is substantially worn out or depleted. Thereafter, inspect the anode rod annually or more frequently if needed. If you use a water softener, your anode rod will deplete faster than normal. Inspect the anode rod more frequently, replacing the anode rod as needed. Obtain new anode rods from your local hardware stores or have a qualified person replace it. (Anode rods are a consumable item and are not covered under warranty).

8 If the sediment was present when the tank was drained, flush the tank by opening the cold water supply valve and letting the water run until no more sediment drains from the tank. Close the drain valve when you are done.

NOTICE: Do not turn power back on until the tank is completely full of water. For complete instructions on filling the tank, follow Step 8 in the Installation section.

9 Refill the tank by opening the cold water supply valve. Make sure a hot water faucet is open and the drain valve is closed. Allow the hot water to run full for at least three minutes to make sure the tank has all the air removed and is completely full of water. Failure to perform this step can cause the upper heating element to burn out. Once you are certain the tank is completely full of water, close the hot water faucet.

10 Restore power to the water heater. It may take two hours for the tank to heat up.

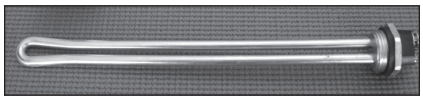
Replacing the Heating Element

⚠ WARNING! Working on an energized circuit can result in severe injury or death from electrical shock. Turn power off. Check wires with a non-contact circuit tester to make sure power is off. When you are finished, be sure all covers are secured to reduce the risk of fire and electric shock.

If you are not comfortable replacing a heating element or thermostat yourself, have this work done by a qualified person. To replace the heating element, you'll need the following tools and supplies:

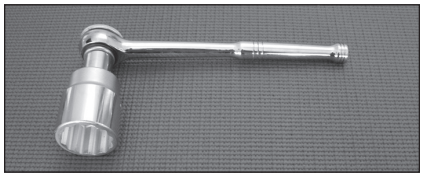
Non-Contact Circuit Tester

- Always turn power OFF and check the power wires with a non-contact circuit tester before working on the water heater.



Heating Element (with gasket)

- Check your water heater's data plate for the correct wattage and voltage. Heating elements are available at most hardware stores.

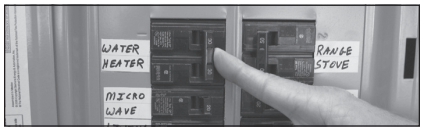


Element Wrench

- Some regular sockets (1 1/2 inch) may work, but regular sockets are often beveled and may slip. Inexpensive element wrenches are available at local hardware stores.
- Garden hose to drain the tank
- Hand dishwashing soap to lubricate the gasket
- A clean cloth to clean the threaded opening
- A flat blade and a Phillips screwdriver

Steps for Replacing the Heating Element:

1 Turn the power OFF at the circuit breaker or remove fuses.



2 Open the electrical junction box on top of the water heater. Using a non-contact circuit tester, check the power wires to make certain the power is OFF.

3 Open a hot water faucet and let the hot water run until it is cool.

⚠ WARNING! Be sure the water runs cool before draining the tank to reduce the risk of scalding.

4 Connect a garden hose to the drain valve and place the other end of the hose in a drain or outside (or use buckets). Turn OFF the cold water valve that supplies the water heater. Open the drain valve on the water heater. Opening a hot water faucet will help the tank drain faster.

5 Remove the upper or lower access panel on the water heater, and then fold back the insulation and remove the plastic element/thermostat cover.

6 With the tank drained and power off, remove the power wires from the element you intend to replace.

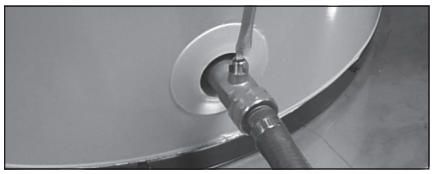
7 Remove the bad element using an element wrench.

8 Make sure the new element is the correct replacement by referring to the water heater's data plate for voltage and wattage information.

9 Clean the threads in the tank opening with a rag. Insert the new element equipped with a rubber gasket. NOTE: Use a drop of hand dishwashing liquid to lubricate the gasket to help avoid damaging the gasket as it is being tightened. Tighten with an element wrench.

NOTICE: Do not turn power back on until the tank is completely full of water. For complete instructions on filling the tank, follow Step 8 in the Installation section.

10 Refill the tank by opening the cold water supply valve. Make sure a hot water faucet is open and the drain valve is closed. Allow the hot water to run full for at least three minutes to make sure the tank has all the air removed and is completely full of water. Failure to perform this step can cause the upper heating element to burn out. Once you are certain the tank is completely full of water, close the hot water faucet.



11 Check the newly installed element for leaks. If a leak is present, tighten the element until the leak stops. If you cannot stop the leak, drain the tank and remove the element. Inspect the gasket for damage. If the gasket is damaged, replace the gasket and re-install the element.

12 Once the element is successfully installed and there are no leaks, replace the power wires, thermostat cover, insulation, and access panel. Make sure all wire connections are tight. Replace the cover on the electrical junction box.

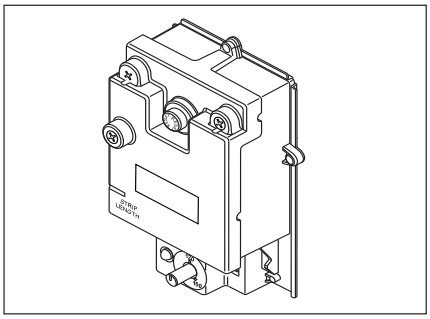
13 Restore power to the water heater. It may take two hours for the tank to heat up.

Replacing the Thermostat

⚠ WARNING! Working on an energized circuit can result in severe injury or death from electrical shock. Turn power off. Check wires with a non-contact circuit tester to make sure power is off. When you are finished, be sure all covers are secured to reduce the risk of fire and electric shock.

To replace the thermostat, you'll need the following tools and supplies:

- A non-contact circuit tester. Always turn power OFF and check with a non-contact circuit tester before working on the water heater.



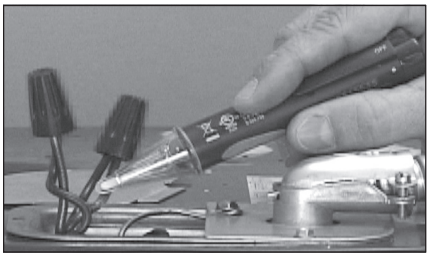
- A replacement thermostat (available at hardware stores). Take the old thermostat to the store to ensure the replacement thermostat is correct.
- A business card to check the gap between the thermostat and the tank
- Tape and a permanent marker to mark the wires
- A flat blade and a Phillips screwdriver

Steps for Replacing the Thermostat:

1 Turn the power OFF at the circuit breaker or remove fuses.

NOTICE: It is not necessary to drain the tank to replace a thermostat.

2 Open the electrical junction box on top of the water heater. Using a non-contact circuit tester, check the power wires to make certain the power is OFF.



3 Remove the upper or lower access panel on the water heater and carefully fold back the insulation and plastic element/ thermostat cover.

4 Make sure the replacement thermostat matches the original thermostat.

5 Mark the wires with tape so you'll know how to put them back on.

6 Disconnect the wires from the bad thermostat and remove the thermostat from the metal mounting clip.

7 Install the new thermostat in the metal mounting clip.

8 Make sure the new thermostat fits snuggly against the tank. You should NOT be able to slip a business card between the thermostat and the tank. If you can, bend the thermostat mounting clip until the thermostat fits tightly against the tank.

9 Attach the wires following the wiring diagram on the water heater's label. Make sure all wire connections are tight.

10 Replace the plastic element/ thermostat cover, insulation, and access panel.

11 Replace the cover on the electrical junction box.

12 Restore power to the water heater. It may take two hours for the tank to heat up.

T&P Relief Valve Maintenance

Read and follow the operating and annual maintenance instructions provided by the manufacturer of the T&P Relief Valve (yellow label attached to T&P Relief Valve). If no label is attached to the T&P Relief Valve, follow the instructions in this section. Minerals in the water can form deposits that cause the valve to stick or create blocked passages, making the T&P Relief Valve inoperative. Follow these guidelines:

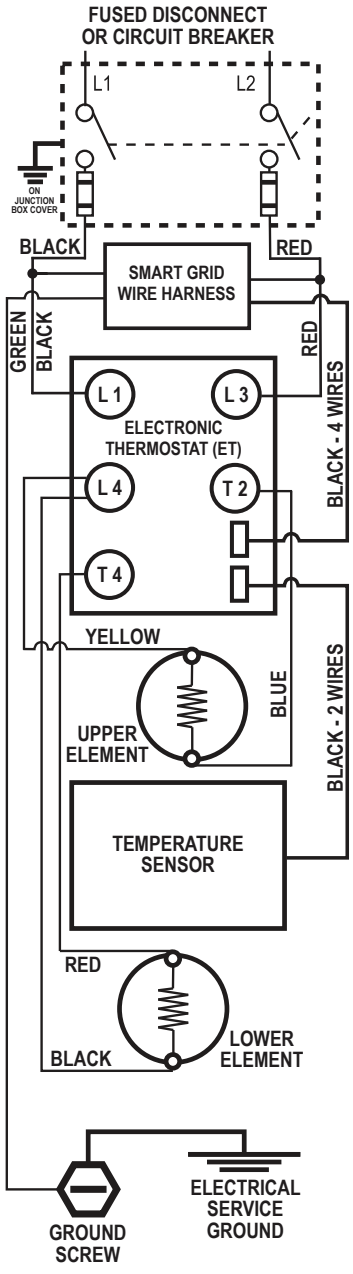
- At least annually, operate the T&P Relief Valve manually to ensure the waterways are clear and the valve mechanism moves freely (above). Before operating the valve manually, check that it will discharge in a place for secure disposal. If water does not flow freely from the end of the discharge pipe, turn OFF the power to the water heater. Call a qualified person to determine the cause.

⚠ WARNING! Hot water will be released. Before operating the T&P relief valve manually, check that it will discharge in a safe place. If water does not flow freely from the end of the discharge pipe, turn the power to the water heater OFF. Call a qualified person to determine the cause.

- At least every five years, have a qualified person inspect the T&P Relief Valve and discharge pipe. Damage caused by corrosive water conditions, mineral deposits, or other problems can only be determined when a qualified person removes and inspects the valve and its components.
- Note that a dripping T&P Relief Valve is usually caused by the home's water pressure being too high or the lack of a Thermal Expansion Tank. If your T&P Relief Valve drips, see page 24. ■

DIAGRAMS

Thermostat Wiring Diagram



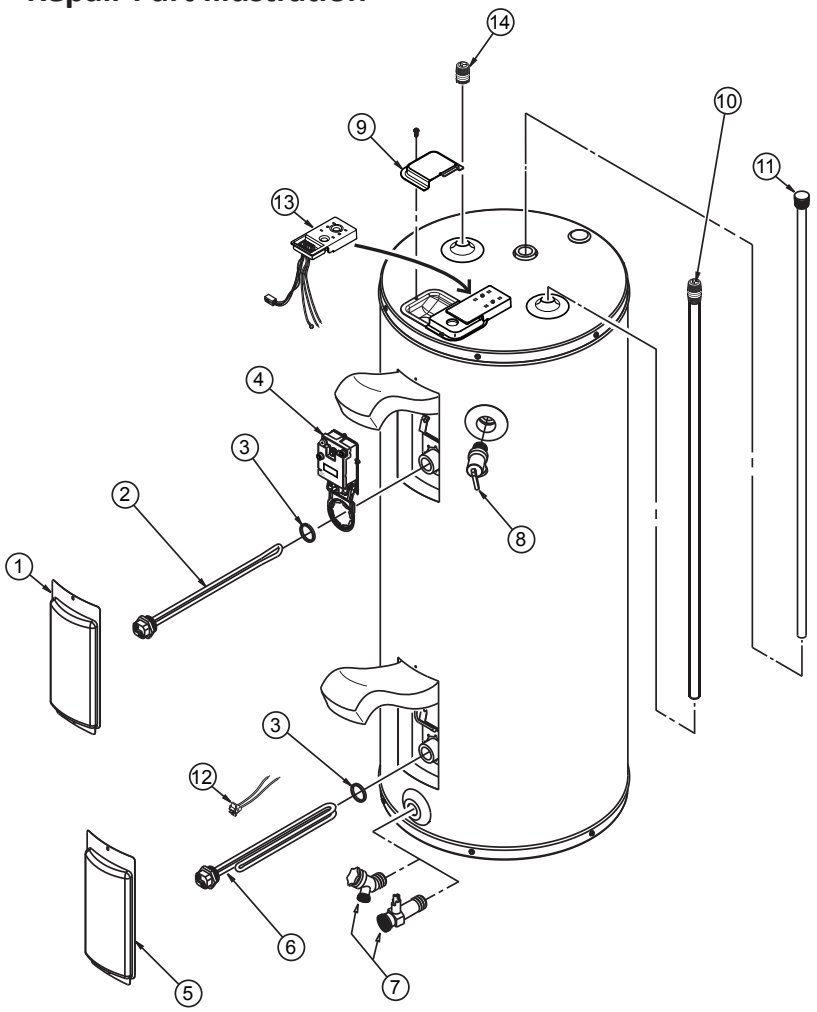
100263189

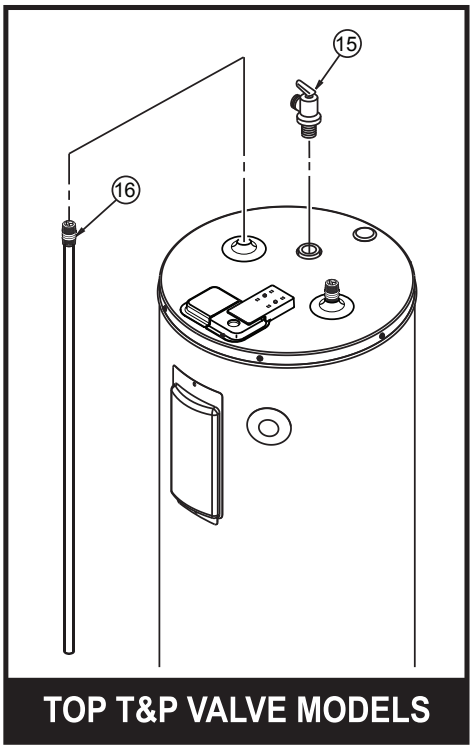
BRANCH CIRCUIT SIZING GUIDE Based on N.E.C. NFPA NO. 70 - 1999						
WATT LOAD	Recommend Over Current Protection Rating			Copper Wire Size AWG Based on N.E.C. Table 310-16 (60°C)		
	120 V	208 V	240 V	120 V	208 V	240 V
1500*	15	15	15	12	14	14
2000	20	15	15	10	14	14
2500	30	15	15	10	14	14
3000	30	20	15	8	12	12
3500	-	20	20	-	10	12
4000	-	25	20	-	10	10
4500	-	30	25	-	10	10
5000	-	30	30	-	10	10
5500	-		30	-		10

*** Wattages less than 1500 may be wired 14 gage with a maximum 15 amp protection.**

REPAIR PARTS

Repair Part Illustration





Repair Parts

Repair parts may be ordered through your plumber, local distributor, home improvement center, or by calling Technical Assistance Hotline which is listed on the water heater's warranty sheet. When ordering repair parts, always give the following information:

1. Model, serial and product number
2. Item number
3. Parts description

Repair Parts List

◆egend

■ Special anode rod (See page 25)

▲ Temperature and Pressure Relief Valve is required, but may not be factory installed.

ITEM No.	PARTS DESCRIPTION
1	ACCESS DOOR
2	UPPER ELEMENT ▲
3	ELEMENT GASKET
4	ELECTRONIC THERMOSTAT (ET)
5	ACCESS DOOR
6	LOWER ELEMENT ▲
7	DRAIN VALVE
8	TEMPERATURE AND PRESSURE RELIEF VALVE ■
9	JUNCTION BOX COVER
10	DIP TUBE (INCLUDES NIPPLE AND HEAT TRAP)
11	ANODE ROD ◆
12	THERMISTOR SENSOR
13	SMART GRID WIRE HARNESS ASSEMBLY
14	HEAT TRAP
15	TOP TEMPERATURE AND PRESSURE RELIEF VALVE
16	HEAT TRAP/ANODE ROD COMBINATION ◆

BROWN ENGINEERS

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Little Rock, Arkansas 72223
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SUBMITTAL REVIEW

Date: July 15, 2024

To:	Fennell Purifoy Architects 100 River Bluff Dr., Suite 320 Little Rock, AR 72202		
Attention:	Christian Martin, AIA		
From:	Austin Lynch		
Re:	22 00 00 Plumbing Basics Submittals for Approval		
Project No.	FP-045	Project Name:	Hugg and Hall Mobile Storage Addition

■	☐	☐	☐	☐	☐	☐
Code 1 Approved	**Code 2** Approved as Noted	**Code 3** Approved As Noted/Confirm	**Code 4** Approved As Noted/Resubmit	**Code 5** Not Approved	**Code 6** Comments Attached	**Code 7** Receipt Acknowledged

1. RP-1, B&G NBF-12U, w/aquastat & timer kit: **Approved**
2. COTG: **Approved**
3. FD-1, nickel bronze top: **Approved**
4. FD-2, polished chrome top: **Approved**
5. HB, Woodford Model 67, frost proof anti-backflow: **Approved**
6. LAV, Kohler K-2214: **Approved**
    a. Faucet, Delta 567LF-MPU: **Approved**
7. RD: **Approved**
8. RH: **Approved**
9. S: **Approved**
    a. Faucet, Delta 9913-DST faucet w/pullout sprayer: **Approved**
    b. Disposal: **Approved**
10. SH: **Approved**
11. WB-1: **Approved**
12. WB-2: **Approved**
13. WC, Kohler K-3979 ADA Flush Tank, 1.6gpf: **Approved**
14. WH-1, State EN6 30 DOLS, 28gal, 6kW: **Approved**
    a. Platform: **Approved**
    b. Expansion Tank: **Approved**

SHOP DRAWING REVIEW

Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Engineer's review and approval will be only to determine if the items covered by the submittals will conform to the information given in the Contract Documents and be compatible with the design concept. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.

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DATE – JUNE 17, 2024

SUBMITTAL FOR MATERIAL

JOB NAME:

HUGG AND HALL MOBILE STORAGE
LITTLE ROCK, AR

PLUMBING CONTRACTOR:

COMFORT SYSTEMS USA
NORTH LITTLE ROCK, AR

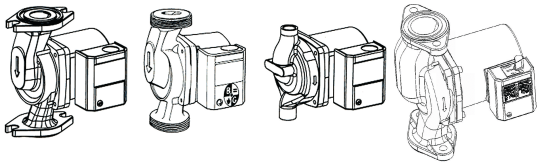
RP-1

ITT

SUBMITTAL

A-127K

JOB:	**REPRESENTATIVE:**	
UNIT TAG:	**ORDER NO.**	**DATE:**
ENGINEER:	**SUBMITTED BY:**	**DATE:**
CONTRACTOR:	**APPROVED BY:**	**DATE:**



Lead-Free** Bronze and Stainless Steel Bodied

System Lubricated Circulators

c UL us LISTED

DESCRIPTION

A series of in-line wet rotor circulation pumps designed specifically for quiet operation in open (potable) water systems. These pumps have lead-free** bronze or stainless steel bodies.

Automatic Timer and Aquastat accessories are available. (See Submittal A-128A for details).

CONSTRUCTION MATERIALS

Pump Body:
- NBF: Bronze
- SSF: Stainless Steel

Bearings: Carbon

Impeller: Noryl

Shaft: Ceramic

OPERATING DATA

Maximum Working Pressure: 150 psi (10.3 Bar)

Minimum Operating Temperature: 40°F (5°C)

Maximum Operating Temperature

NBF-25, NBF-33, NBF-36, NBF-45: 225°F (107°C)

All Others: 230°F (110°C)

MODEL NUMBER	PART NUMBER	CONNECTION	APPROX. SHPG. WT. Lbs. (Kg)	STANDART 60 CYCLE 115 VOLT SINGLE PHASE			TAGGING INFORMATION	QUANTITY
				WATTS	F.L. AMPS	RPM		
NBF-8S/LW	103257LF	1/2" Sweat	9.0 (4.1)	39	0.38	2800		
NBF-9U/LW	103258LF	Union (See Following Page)	9.3 (4.2)	41	0.40	2800		
SSF-9U/LW	103360LF	Union (See Following Page)	9.3 (4.2)	41	0.40	2800		
NBF-10S/LW	103259LF	1/2" Sweat	9.0 (4.1)	52	0.46	2800		
NBF-12U/LW	103261LF	Union (See Following Page)	9.3 (4.2)	55	0.48	2800		
SSF-12U/LW	103361LF	Union (See Following Page)	9.3 (4.2)	55	0.48	2800		
NBF-12F/LW	103260LF	Flange 3/4, 1, 1-1/4, 1-1/2	9.5 (4.3)	55	0.48	2800		
SSF-12F/LW	103358LF	Flange 3/4, 1, 1-1/4, 1-1/2	9.5 (4.3)	55	0.48	2800		
NBF-18S	103316LF	1/2" Sweat	9.0 (4.1)	90	0.74	3000		
NBF-22U	103255LF	Union (See Following Page)	9.3 (4.2)	92	0.80	2940		
SSF-22U	103362LF	Union (See Following Page)	9.3 (4.2)	92	0.80	2940		
NBF-22	103252LF	Flange 3/4, 1, 1-1/4, 1-1/2	9.5 (4.3)	92	0.80	2940		
SSF-22	103357LF	Flange 3/4, 1, 1-1/4, 1-1/2	9.5 (4.3)	92	0.80	2940		
NBF-25*	103418LF	Flange 3/4, 1, 1-1/4, 1-1/2	10.4 (4.7)	125	1.10	2950		
NBF-33	103351LF	Flange 3/4, 1, 1-1/4, 1-1/2	10.4 (4.7)	125	1.10	2950		
NBF-36*	103401LF	Flange 3/4, 1, 1-1/4, 1-1/2	13.1 (6.0)	270	2.30	3300		
NBF-45*	103405LF	Flange 1, 1-1/4, 1-1/2	14.5 (6.6)	270	2.30	3300		

*3-speed circulators

**Contains less than 0.25% lead content on wetted surface

TYPICAL SPECIFICATIONS

The contractor shall furnish and install in-line circulating pumps as illustrated on the plans and in accordance with the following specifications:

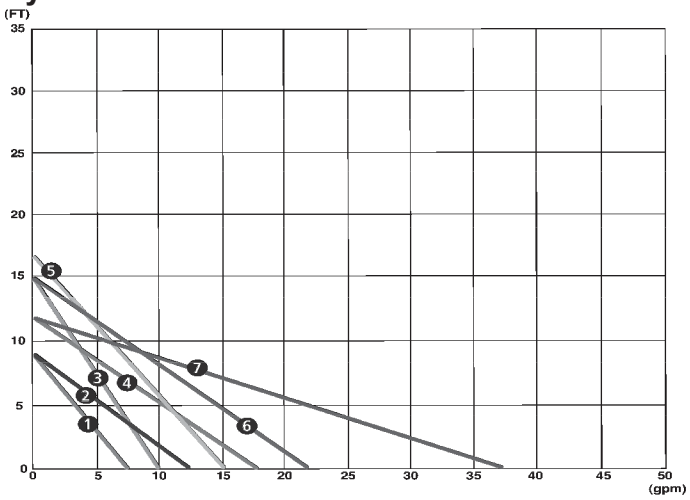
1. The pumps shall be of the horizontal system lubricated type specifically designed and guaranteed for quiet operation.
2. Pump to be suitable for _____ºF (_____ºC) [choose one: 225ºF (107ºC) for NBF-25, NBF-33, NBF-36, NBF-45 or 230°F (110°C) for all other circulators] operation at 150 psig (10.3 Bar) working pressure.
3. The pumps shall have a ceramic shaft supported by carbon bearings. Bearings are to be lubricated by the circulating fluid.
4. Pump body shall be lead-free bronze for NBF circulators or stainless steel for SSF circulators.
5. Motor stator to be isolated from circulating fluid through use of stainless steel can. Rotor to be sheathed in stainless steel.
6. Motors shall be non-overloading at any point on the pump curve. NBF-36 & NBF-45 to have built-in thermal protection. All other motors to have built-in impedance protection.
7. NBF-25 has an optional check valve.

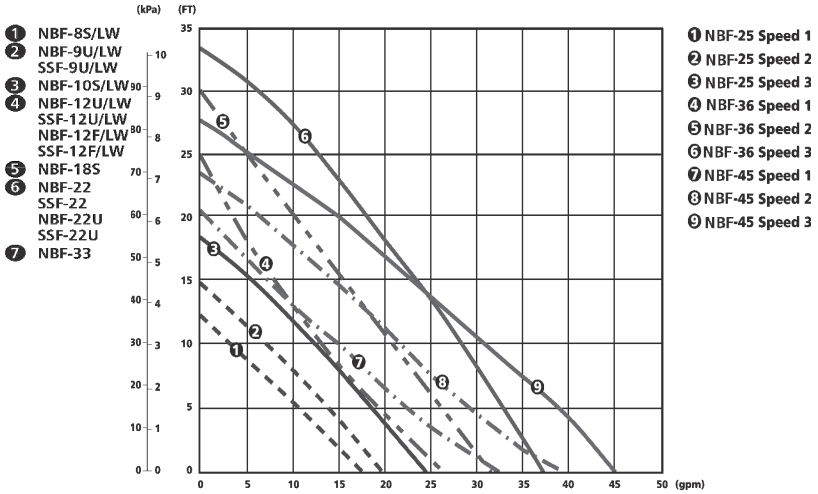
Pumps to have a capacity of _____GPM at _____ foot head when powered by 115 volt, 60 cycle single phase electrical supply.

All pumps are to be ITT Industries - Bell & Gossett Model _____.

Bell & Gossett

System Lubricated Circulators

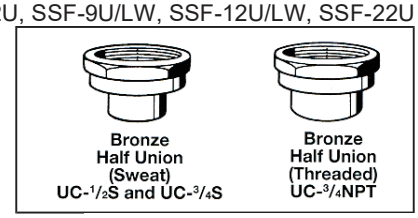


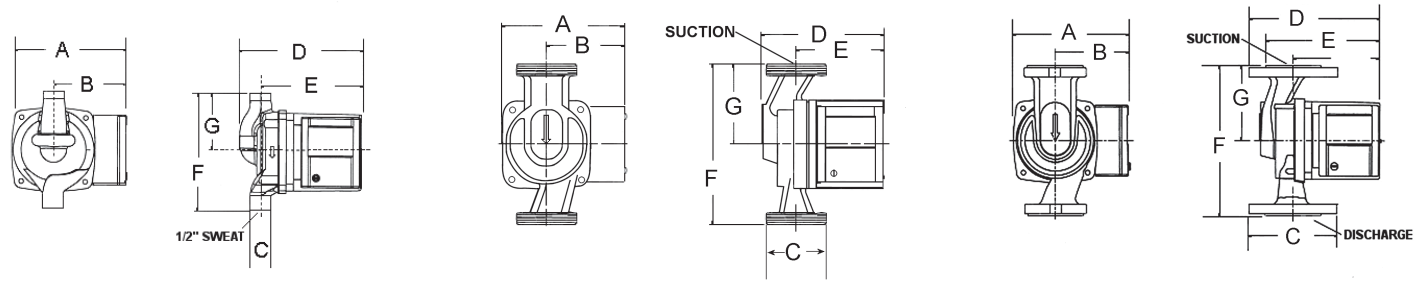


HALF UNION CONNECTIONS

For NBF-9U/LW, NBF-12U/LW, NBF-22U, SSF-9U/LW, SSF-12U/LW, SSF-22U

MODEL NUMBER	PART NUMBER	DESCRIPTION (SETS OF 2)
UC-1/2S	113203LF	1/2" Bronze Union Sweat
UC-3/4S	113201LF	3/4" Bronze Union Sweat
UC-3/4NPT	113202LF	3/4" Bronze Union NPT Female





MODEL	PART NUMBER	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	G in (mm)
NBF-8S/LW	103257LF	4-7/8 (124)	3-3/16 (81)	1/2 (13)	5-7/32 (132)	4-9/32 (109)	5 (127)	2-1/2 (63)
NBF-9U/LW	103258LF	4-7/8 (124)	3-3/16 (81)	1-1/4 (32)	5-1/16 (129)	3-11/16 (93)	6-1/8 (156)	3-1/16 (78)
SSF-9U/LW	103360LF	4-7/8 (124)	3-3/16 (81)	1-1/4 (32)	5-1/16 (129)	3-11/16 (93)	6-1/8 (156)	3-1/16 (78)
NBF-10S/LW	103259LF	4-7/8 (124)	3-3/16 (81)	1/2 (13)	5-7/32 (132)	4-9/32 (109)	5 (127)	2-1/2 (63)
NBF-12U/LW	103261LF	4-7/8 (124)	3-3/16 (81)	1-1/4 (32)	5-1/16 (129)	3-11/16 (93)	6-1/8 (156)	3-1/16 (81)
SSF-12U/LW	103361LF	4-7/8 (124)	3-3/16 (81)	1-1/4 (32)	5-1/16 (129)	3-11/16 (93)	6-1/8 (156)	3-1/16 (78)
NBF-12F/LW	103260LF	4-7/8 (124)	3-3/16 (81)	3-3/16 (81)	5-9/16 (141)	3-11/16 (93)	6-3/8 (162)	3-3/16 (82)
SSF-12F/LW	103358LF	4-7/8 (124)	3-3/16 (81)	3-3/16 (81)	5-9/16 (141)	3-11/16 (93)	6-3/8 (162)	3-3/16 (82)
NBF-18S	103316LF	4-7/8 (124)	3-3/16 (81)	1/2 (13)	5-7/32 (132)	4-9/32 (109)	5 (127)	2-1/2 (63)
NBF-22U	103255LF	4-7/8 (124)	3-3/16 (81)	1-1/4 (32)	5-1/16 (129)	3-11/16 (93)	6-1/8 (156)	3-1/16 (78)
SSF-22U	103362LF	4-7/8 (124)	3-3/16 (81)	1-1/4 (32)	5-1/16 (129)	3-11/16 (93)	6-1/8 (156)	3-1/16 (78)
NBF-22	103252LF	4-7/8 (124)	3-3/16 (81)	3-3/16 (81)	5-9/16 (141)	3-11/16 (93)	6-3/8 (162)	3-3/16 (82)
NBF-25*	103418LF	5-1/8 (130)	3-3/16 (81)	3-3/16 (81)	6-3/16 (157)	4-7/8 (124)	6-3/8 (162)	2-1/2 (63)
NBF-33	103351LF	4-7/8 (124)	3-3/16 (81)	3-3/16 (81)	6-3/16 (157)	3-11/16 (94)	6-3/8 (162)	3-3/16 (82)
NBF-36*	103401LF	5-3/4 (146)	3-9/16 (91)	3-3/16 (81)	6-3/16 (157)	5-3/8 (137)	6-3/8 (162)	3-3/16 (82)
NBF-45*	103405LF	5-3/4 (146)	3-9/16 (91)	3-7/16 (87)	7-3/8 (187)	5-1/2 (140)	8-1/2 (216)	4-1/4 (108)

Dimensions are subject to change. Not to be used for construction purposes unless certified.
Companion Flanges Available in Sizes: 3/4", 1", 1-1/4", and 1-1/2"
* 3-speed circulators

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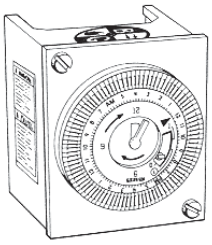
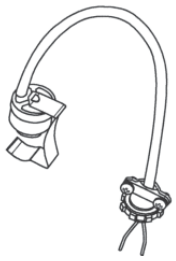
ITT

SUBMITTAL

A-128D

JOB:	**REPRESENTATIVE:**	
UNIT TAG:	**ORDER NO.**	**DATE:**
ENGINEER:	**SUBMITTED BY:**	**DATE:**
CONTRACTOR:	**APPROVED BY:**	**DATE:**





Automatic Timer Kit

Model TC-1

Aquastat

Models: AQS-1/2, AQS-3/4

DESCRIPTION

TC-1 AUTOMATIC TIMER KIT - To increase the overall efficiency of a hot water recirculation system, the TC-1 timer control kit can be installed for use on any B&G NBF/NRF/SSF/PL and most 3-piece circulators. The TC-1 timer control is programmable to turn the circulator ON and OFF automatically at preset times. This permits the user to have the pump circulate hot water only during those times when high usage can be expected throughout the day.

AQS-1/2 and AQS-3/4 AQUASTAT - are designed to thermostatically turn any B&G NBF/NRF/SSF circulator ON and OFF. The AQS-1/2 or AQS-3/4 will switch the pump OFF at 120ºF (48.9ºC) and ON at 100ºF (37.8ºC). The aquastats are available in separate models that will sense the temperature for either 1/2" or 3/4" copper pipe.

AUTOMATIC TIMER KIT and AQUASTAT COMBINATION - The automatic timer and aquastat kits can be used in combination. When they are used together, the pump will only circulate water when the ON time conditions are met and when water temperature is low enough to cause the aquastat to switch ON.

OPERATIONAL LIMITS

TC-1 AUTOMATIC TIMER KIT:

Power Supply: 115/120 VAC, 60 HZ, 1Ø

Minimum Switch Interval: 15 minutes

Run Modes: ON (continuous run), OFF (at all times), TIMER (run at programmed intervals)

Maximum Switch Current: 16 amps

AQS-1/2, AQS-3/4 AQUASTATS

Thermostatic Switch Modes: OFF (open) at 120°F (48.9°C) and ON (closed) at 100°F (37.8°C) operation of the aquastat is dependent on ambient settings. In setting where there is excessive heat loss or in installations where heat from the boiler or other components can affect the aquastat, the actual on and off temperatures may vary.

Thermostatic Element: Bimetal, senses surface temperature of outside diameter of pipe.

Pipe Size: AQS-1/2 clips onto 1/2" copper pipe or 3/8" steel pipe (OD of pipe 5/8"). AQS-3/4 clips onto 3/4" copper pipe or 1/2" steel pipe (OD of pipe 7/8").

Mounting: May be installed to sense temperature at the suction or discharge pipe of the pump.

CONSTRUCTION MATERIALS

TC-1 AUTOMATIC TIMER KIT:

Timer Body: Noryl Plastic

AQS-1/2, AQS-3/4 AQUASTATS:

Thermostat Covering: Epoxy (Environmentally Sealed)
Pipe Clip: Stainless Steel
Sensing Element: Bimetal
Wire Leads: Insulated 18" (457mm) #18 AWG

APPROX. SHIPPING WEIGHT

TC-1: 11oz. (.31Kg)
AQS-1/2: 5oz. (.14Kg)
AQS-3/4: 5oz. (.14Kg)

SCHEDULE

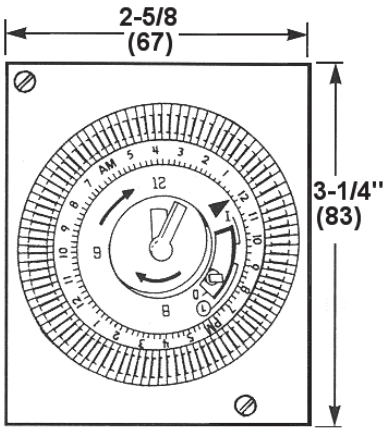
MODEL NUMBER	PART NUMBER	SIZE INCHES	VOLTAGE RATING 60 HZ 1Ø	TAGGING INFORMATION	QUANTITY
TC-1	113210	–	115-120		
AQS-1/2	113223	1/2	115-120		
AQS-3/4	113224	3/4	115-120		

Bell & Gossett

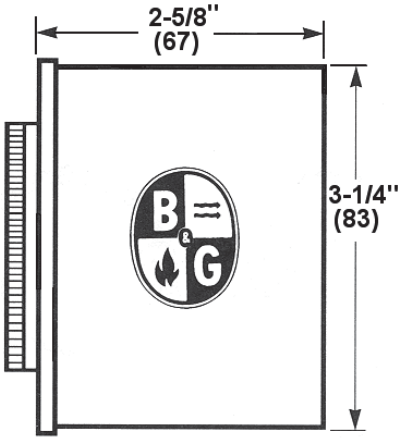
AUTOMATIC TIMER KIT AQUASTATS

A-128D

TIMER KIT DIMENSION IN INCHES (MM)



FRONT VIEW



SIDE VIEW

TYPICAL SPECIFICATIONS

Furnish and install as shown on the circulator plans and in accordance with the following specifications:

AUTOMATIC TIMER KIT:

1. The timer kit shall be UL approved.
2. The timer kit shall be installed on the connection box of any Bell & Gossett NBF/NRF/SSF system lubricated circulator.
3. The timer kit will be suitable for 115/120V, 60 HZ operation.
4. The timer shall provide automatic ON-OFF control at minimum interval of every 15 minutes. It shall also have the option of providing manual ON-OFF control.

All units shall be ITT Industries - Bell & Gossett Model No.: TC-1

AQUASTATS:

1. The aquastat shall be UL approved.
2. The aquastat shall be connected to the lead wires in the connection box of any Bell & Gossett NBF/NRF/SSF system lubricated circulator.
3. The aquastat will be suitable for 115/120V, 60 HZ operation.
4. The aquastat shall provide thermostat control to the circulator. It will turn OFF (open) at 120ºF (48.9ºC) and ON (closed) at 100ºF (37.8ºC) the use of insulation in installation with excessive heat or cooling may be necessary. Use of fiberglass insulation with R-values greater than 1.6 is recommended.

All units shall be ITT Industries - Bell & Gossett Model No.:
(Choose: AQS-1/2 or AQS-3/4).

AUTOMATIC TIMER KIT AND AQUASTAT COMBINATION:

1. The automatic timer kit and either aquastat model can be combined to provide automatic time and temperature control to any Bell & Gossett NBF/NRF/SSF circulator.
2. When the automatic timer and the aquastat are used together, the pump will only circulate water when the ON time conditions are met and when the water temperature is low enough to cause the aquastat to switch ON.

All units shall be ITT Industries - Bell & Gossett Model No.: TC-1 and Bell & Gossett Model No.: (Choose: AQS-1/2 or AQS-3/4).

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Morton Grove, IL 60053
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Facsimile (847)966-9052
www.bellgossett.com

COTG

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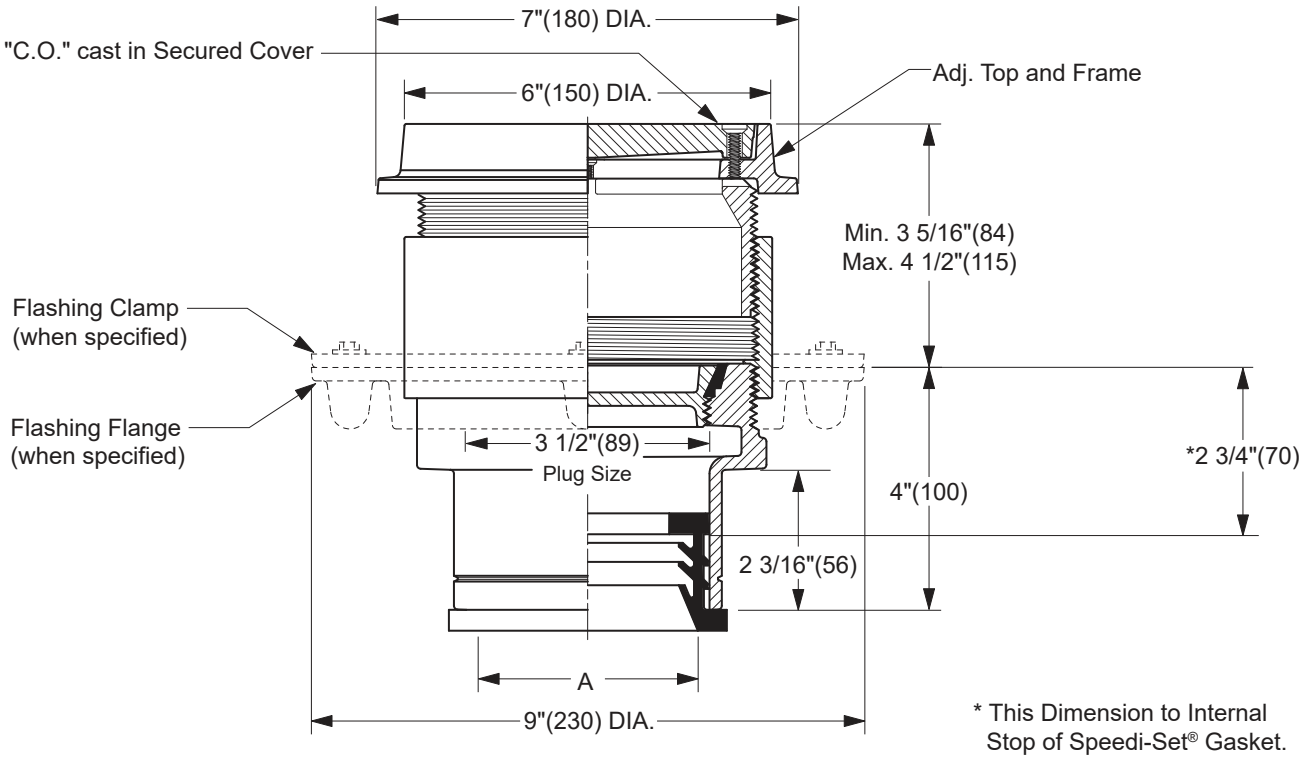

* This Dimension to Internal Stop of Speedi-Set® Gasket.

TWIS-TO-FLOOR® ADJUSTMENT

SPEEDI-SET® OUTLET ▲

"A" (Pipe Size) = 02(50), 03(75) or 04(100)

Conforms to ASME A112.36.2/CSA B79.2

- ☐ Fig. 4231L.....Gasket Seal - ABS Plug
- ☐ Fig. 4232L.....Gasket Seal - Bronze Plug
- ☐ Fig. 4233L.....Taper Thread - Bronze Plug
- ☐ Fig. 4234L.....Taper Thread - ABS Plug

(Twis-to-Floor® design shown with gasketed plug.)

NOTE: Dimensions shown in parentheses are in millimeters.

REGULARLY FURNISHED:
Duco Cast Iron Cleanout with Round Adjustable Scoriated Secured Cast Iron Top. Closure Plug Type as Indicated By Figure Number Selected.

VARIATIONS:
- ☐ Flashing Flange -F
- ☐ Flange with Flashing Clamp -F-C
- ☐ Vandal Proof Top -U

▲ Available in Extra Heavy, Service Weight or NO-HUB.

OPTIONAL MATERIALS:
- ☐ Galvanized Cast Iron -G
- ☐ Ductile Iron Cover -M

REV.	DATE	DESCRIPTION	BY	CKD. BY
R	4-11-24	Added ASME Note	HS	CL
Q	8-17-23	Removed Function	HS	CL
P	3-14-23	Added ® to Speedi-Set	KK	CL
N	12/17/04	Added Width Dimension at Top	JJ	CL

WEIGHT POUNDS

VOLUME CUBIC FEET

FIGURE NUMBER
4231 SERIES

FIGURE NUMBER 4231 SERIES | DRAWN BY: RK | CHECKED BY: BH | APPROVED BY: JM | DATE: 2-16-70 | SCALE: NONE | SIZE A | DRAWING NUMBER S4231 | R

FD-1

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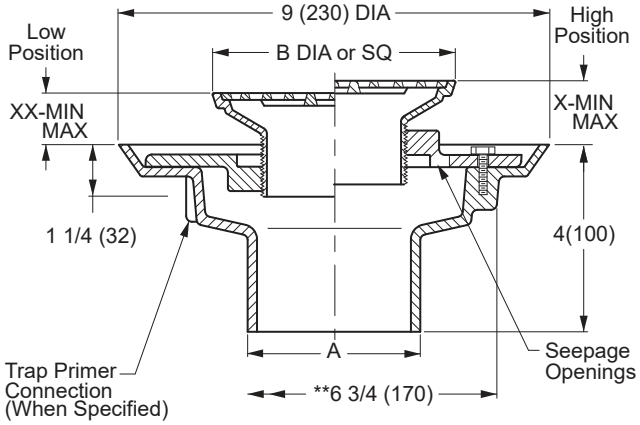
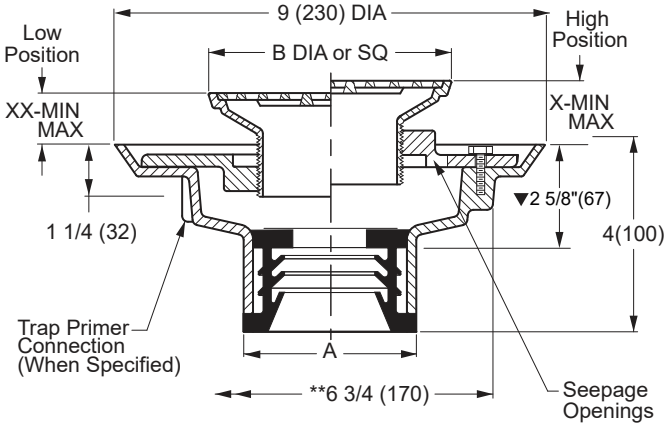
MEMBER OF:

LOCATION

FLOOR OR SHOWER DRAINS
WITH ADJUSTABLE STRAINER HEADS

Load Rating: Light Duty having a Safe Live (Static) Load less than 2,000 lbs. (900 kg) per ASME A112.6.3 Floor Drain Standard.
For the specific Safe Live Load rating of any grate, contact the Smith representative or factory direct.





A (Pipe Size) = 02(50), 03(75), 04(100), 05(125) or 06(150)

NO-HUB OUTLET

☐ **Fig. 2005Y.....(A) ROUND TOP**
☐ **Fig. 2005Y.....(B) SQUARE TOP**

	Outlet Size	Nickel Bronze Strainer Head
▲	02(50)	05(125) DIA or SQ
▲	03(75)	06(150) DIA or SQ
▲	04(100)	08(205) DIA or SQ

SPEEDI-SET® OUTLET

☐ **Fig. 2005L.....(A) ROUND TOP**
☐ **Fig. 2005L.....(B) SQUARE TOP**

	Strainer Size B DIA or SQ	*Collar In High Position X MIN	X MAX	*Collar In Low Position XX MIN	XX MAX	Free Area SQ IN (SQ CM) ROUND	SQUARE
☐	05 (125)	1 1/4(32)	2 1/4(57)	3/4(19)	1 5/8(41)	7(45)	6.5(42)
☐	06 (150)	1 1/4(32)	2 1/4(57)	3/4(19)	1 5/8(41)	9(58)	12.5(81)
☐	07 (180)	1 1/4(32)	2 1/4(57)	7/8(22)	1 7/8(48)	14(90)	11(71)
☐	08 (205)	1 1/2(38)	2 1/2(64)	1(25)	1 7/8(48)	17(110)	14(90)
☐	•09 (230)	1 1/2(38)	2 3/8(60)	1(25)	1 7/8(48)	18(116)	16(103)
☐	•10 (255)	1 1/2(38)	2 3/8(60)	1(25)	1 7/8(48)	23(48)	16(103)

▼This dimension to internal stop of speedi-set® gasket.
• Add 3/8"(10) to all min/max dimensions for round strainers.
* Collar is reversible to obtain extreme high and low strainer positions.
•• Not available for 5"(125) size strainer.
** MIN 6 3/4"(170) hole required for core drilled application.

REGULARLY FURNISHED:
Duco Cast Iron Body with Flashing Collar and Adjustable Strainer Head as Indicated by Suffix Letter Selected.

NOTE: Dimensions shown in parentheses are in millimeters.

▲ **Meets ASME Standard A112.6.3-2001 02(50), 03(75) or 04"(100) sizes only.**

VARIATIONS:
- ☐ Flapper Type Backwater Valve -V **(NOTE 2)**
- •• ☐ Hinged Grate -H **(NOTE 1)**
- ☐ L Speedi-Set® Service Weight 2(50), 3(75) & 4"(100) only
- ☐ LXH Speedi-Set® Extra Heavy 2(50), 3(75) & 4"(100) only
- ☐ Sediment Bucket -B
- ☐ Trap Primer Connection -P050 1/2" (13) & -P075 3/4" (19)
- ☐ Vandal Proof Screws -U
- ☐ Wide Flanged Strainer (Specify Fig. DX2005)
- ☐ T Threaded Outlet (Specify 2010T)
- ☐ Heelproof Grate -HP -AHP (Round) or -BHP (Square)
- ☐ Quad Close Trap Seal (Specify Fig. 2692)

OPTIONAL MATERIALS:
- ☐ Bronze Body -BB
- ☐ Chrome Plated Strainer -CP
- ☐ Galvanized Cast Iron Body -G
- ☐ Nickel Bronze Strainer -NB
- ☐ Polished Bronze Strainer -PB
- ☐ All Stainless Steel (Specify Fig. 9700)
- ☐ Stainless Steel Strainers -SS [Available in 05(125) & 06(150) sizes only]

NOTE 1: Sediment Bucket -B not provided for a Hinged Grate (-H)

NOTE 2: Sediment Bucket -B not provided for a Ball Float (-BFV) or a Flapper Type (-V)

SEE PM 0457 FOR OPTIONAL STRAINER HEADS.

REV.	DATE	DESCRIPTION	BY	CKD. BY
Y	8-9-23	Removed Function	HS	CL
X	3-10-23	Added ® to "Speedi-Set"	KK	CL
W	10-8-21	Added NOTE 1 & 2	KK	JM
V	8-27-21	Edited Variations	KK	JM

WEIGHT POUNDS | VOLUME CUBIC FEET | **FIGURE NUMBER 2005**

FIGURE NUMBER **2005** | DRAWN BY: PJ | CHECKED BY: TD | APPROVED BY: TD | DATE: 5-17-85 | SCALE: NONE | SIZE A | DRAWING NUMBER S2005 | Y

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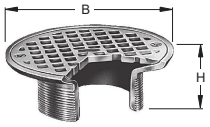
CUSTOMER DRIVEN SINCE 1926
MEMBER OF:

NOTE 1: Sediment Bucket -B not provided for a Hinged Grate (-H)

NOTE 2: Sediment Bucket -B not provided for a Ball Float (-BFV) or a Flapper Type (-V)

OPTIONAL STRAINER HEADS

ROUND STRAINER



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB
Stainless Steel Strainers -SS [Available in 05(125) & 06(150) sizes only]

VARIATIONS:
*Hinged Grate (Specify Suffix -AH) (NOTE 1)
Sediment Bucket -B
Vandal Proof Screws -U

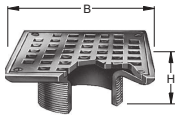
B DIA	05 (125)	06 (150)	07 (180)	08 (205)	09 (230)	10 (255)
H	2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)	2 1/2 (64)	2 3/4 (70)
X MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)	1 1/2 (38)	1 1/2 (38)
X MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)	2 1/2 (64)	2 3/4 (70)

LIGHT DUTY

SUFFIX -A

Specify Type, Size & Finish eg: A05NB
*Not available for 05" (125) size

FLAPPER TYPE BACKWATER VALVE



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS
*Hinged Grate (Specify Suffix -AH)
Vandal Proof Screws -U

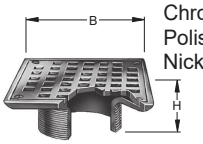
B SQ	05 (125)	06 (150)	07 (180)	08 (205)
H	2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)
X MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)
X MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)

LIGHT DUTY

SUFFIX -AV

Specify Type, Size & Finish eg: AV05NB
*Not available for 05" (125) size

SQUARE STRAINER 6"



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS
Flapper Type Backwater Valve (Specify Suffix -BV) 05 (125), 06 (150), 07 (180) or 08" (205) sizes only (NOTE 2)
*Hinged Grate (Specify Suffix -BH) (NOTE 1)
Sediment Bucket -B
Vandal Proof Screws -U

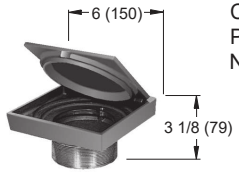
B SQ	05 (125)	06 (150)	07 (180)	08 (205)	09 (230)	10 (255)
H	2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)	2 1/4 (57)	2 1/4 (57)
X MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)	1 1/2 (38)	1 1/2 (38)
X MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)	2 1/4 (57)	2 3/8 (60)

LIGHT DUTY

SUFFIX -B

Specify Type, Size & Finish eg: B05NB
*Not available for 05" (125) size

STRAINER HEAD w/SQUARE HINGED COVER



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

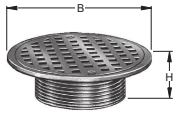
VARIATIONS:
Gasketed Water Tight Cover -GC
Secured Cover -SC
Secondary Strainer Grate-SG

LIGHT DUTY

SUFFIX -BS

Specify Type, Size & Finish eg: BSNB

REINFORCED ROUND STRAINER



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -CV) (NOTE 2)
Sediment Bucket -B
Vandal Proof Screws -U

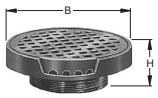
B DIA	05 (125)	06 (150)	08 (205)	10 (255)
H	2 (51)	2 (51)	2 1/2 (64)	2 3/4 (70)
MIN	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)	1 7/8 (48)
MAX	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)	2 3/4 (70)

LIGHT DUTY

SUFFIX -C

Specify Type, Size & Finish eg: C06NB

REINFORCED TRACTOR STRAINER



MATERIALS:
Cast Iron -CI
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -DV or -EV) (NOTE 2)
Sediment Bucket -B
Vandal Proof Screws -U

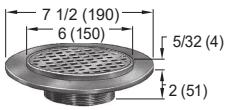
SUFFIX	B DIA	H	X MIN	X MAX
-D	07 (180)	3 1/4 (83)	2 5/8 (67)	3 1/2 (89)
-E	09 (230)	3 1/2 (89)	2 3/4 (70)	3 1/2 (89)

LIGHT DUTY

SUFFIX -D-E

Specify Type, Size & Finish eg: D07PB E09PB

TILE FLANGE



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -FV)
Holes in Flange -SH
Sediment Bucket -B
Vandal Proof Screws -U

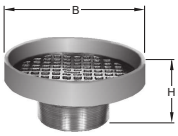
X MIN	X MAX
1 1/4 (32)	2 1/8 (54)

LIGHT DUTY

SUFFIX -F

Specify Type, Size & Finish eg: F06NB

ADJUSTABLE STRAINER HEAD



VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -F37V or F38V)
Sediment Bucket -B

MATERIALS:
Cast Iron -CI
Chrome Plated -CP
Galvanized Cast Iron -G
Polished Bronze -PB
Nickel Bronze -NB

SUFFIX	-F37	-F38
B DIA	07 (180)	09 (230)
H	3 1/4 (83)	3 1/2 (89)
X MIN	2 5/8 (67)	2 3/4 (70)
X MAX	3 1/2 (89)	3 1/2 (89)

NON-TRAFFIC

SUFFIX -F37-F38

Specify Type, Size & Finish eg: F37NB F38CP

REV.	DATE	DESCRIPTION	BY	CKD. BY
N	5-21-24	Removed Function, Rev. Var.	HS	KV
M	10-8-21	Added NOTE 1 & 2	KK	JM
L	10-26-20	Rev. Finish (Tractor Stainer)	MW	CL

FIGURE NUMBER
2005/2010 SERIES OPTIONAL STRAINER HEADS
1 0f 2

FIGURE NUMBER: 2010 SERIES OPTIONAL STRAINER HEADS
DRAWN BY: PJ
CHECKED BY: TD
APPROVED BY: TD
DATE: 5-17-85
SCALE: NONE
SIZE: A
DRAWING NUMBER: PM0457 SH 1 of 2
N

ASSUME NO RESPONSIBILIT OR USE OF SUPERSEDED OR VOID DATA
DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

NOTE: Dimensions shown in parentheses are in millimeters.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

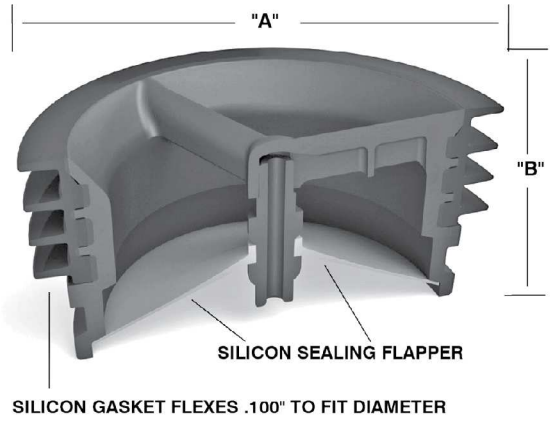
Location: _____

MIFAB® MI-GARD®

FLOOR DRAIN TRAP SEAL

Specification: MIFAB® MI-GARD® Series inline floor drain trap seal with UV resistant ABS plastic frame, silicon rubber sealing flapper and four flexible sealing ribs. Tested and certified to the ASSE 1072 Standard and listed with IAPMO and I.C.C. Specify connection size (1 1/2", 2", 3", 3 1/2", 4" or 6").

Function: Used in the outlet connections of floor drain bodies, or the inside of floor drain strainers to seal the opening to prevent odors, sewer gases, and insects from entering up through the floor drain grate. The MI-GARD®'s four flexible silicone sealing ribs ensure easy installation into openings that have variations in size. The MI-GARD® will open to allow drainage and close when there is no water flow.



BOTTOM OF BODY

TOP OF STRAINER

MODEL NO.	"A" (PIPE SIZE)	"B" (HEIGHT)
◯ MI-GARD-1.5	1-1/2" (38)	2" (51)
◯ MI-GARD-2	2" (51)	2" (51)
◯ MI-GARD-3	3" (76)	2" (51)
◯ MI-GARD-3.5	3 1/2" (89)	2" (51)
◯ MI-GARD-4	4" (102)	2" (51)
◯ MI-GARD-6	6" (152)	2" (51)

MI-GARD® prevents the following from entering through the top of floor drains:
• Odors and sewer gases • Insects

Not intended to be used in lieu of a trap seal primer. 6" MI-GARD not IAPMO certified.

Note: The MI-GARD-6 is designed in accordance with industry standards but is not listed.

CALIFORNIA PROPOSITION 65 WARNING. This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Job Name: _____ Page No: _____

Section No: _____ Contractor: _____

Schedule No: _____ Purchase Order No: _____

USA: 1-800-465-2736 www.mifab.com CAN: 1-800-387-3880

FD-2

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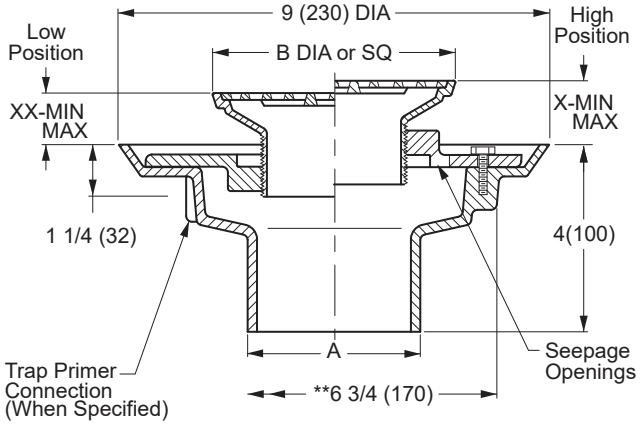
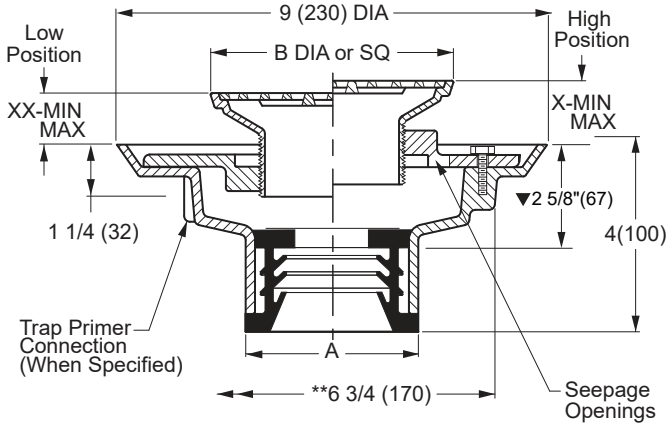
CUSTOMER DRIVEN SINCE 1926
MEMBER OF:

LOCATION

FLOOR OR SHOWER DRAINS
WITH ADJUSTABLE STRAINER HEADS

Load Rating: Light Duty having a Safe Live (Static) Load less than 2,000 lbs. (900 kg) per ASME A112.6.3 Floor Drain Standard.
For the specific Safe Live Load rating of any grate, contact the Smith representative or factory direct.





A (Pipe Size) = 02(50), 03(75), 04(100), 05(125) or 06(150)

NO-HUB OUTLET

☐ **Fig. 2005Y.....(A) ROUND TOP**
☐ **Fig. 2005Y.....(B) SQUARE TOP**

	Outlet Size	Nickel Bronze Strainer Head
▲	02(50)	05(125) DIA or SQ
▲	03(75)	06(150) DIA or SQ
▲	04(100)	08(205) DIA or SQ

SPEEDI-SET® OUTLET

☐ **Fig. 2005L.....(A) ROUND TOP**
☐ **Fig. 2005L.....(B) SQUARE TOP**

	Strainer Size B DIA or SQ	*Collar In High Position X MIN	X MAX	*Collar In Low Position XX MIN	XX MAX	Free Area SQ IN (SQ CM) ROUND	SQUARE
☐	05 (125)	1 1/4(32)	2 1/4(57)	3/4(19)	1 5/8(41)	7(45)	6.5(42)
☐	06 (150)	1 1/4(32)	2 1/4(57)	3/4(19)	1 5/8(41)	9(58)	12.5(81)
☐	07 (180)	1 1/4(32)	2 1/4(57)	7/8(22)	1 7/8(48)	14(90)	11(71)
☐	08 (205)	1 1/2(38)	2 1/2(64)	1(25)	1 7/8(48)	17(110)	14(90)
☐	•09 (230)	1 1/2(38)	2 3/8(60)	1(25)	1 7/8(48)	18(116)	16(103)
☐	•10 (255)	1 1/2(38)	2 3/8(60)	1(25)	1 7/8(48)	23(48)	16(103)

▼This dimension to internal stop of speedi-set® gasket.
• Add 3/8"(10) to all min/max dimensions for round strainers.
* Collar is reversible to obtain extreme high and low strainer positions.
•• Not available for 5"(125) size strainer.
** MIN 6 3/4"(170) hole required for core drilled application.

REGULARLY FURNISHED:
Duco Cast Iron Body with Flashing Collar and Adjustable Strainer Head as Indicated by Suffix Letter Selected.

NOTE: Dimensions shown in parentheses are in millimeters.

▲ **Meets ASME Standard A112.6.3-2001 02(50), 03(75) or 04"(100) sizes only.**

VARIATIONS:
☐ Flapper Type Backwater Valve -V **(NOTE 2)**
•• ☐ Hinged Grate -H **(NOTE 1)**
☐ L Speedi-Set® Service Weight 2(50), 3(75) & 4"(100) only
☐ LXH Speedi-Set® Extra Heavy 2(50), 3(75) & 4"(100) only
☐ Sediment Bucket -B
☐ Trap Primer Connection -P050 1/2" (13) & -P075 3/4" (19)
☐ Vandal Proof Screws -U
☐ Wide Flanged Strainer (Specify Fig. DX2005)
☐ T Threaded Outlet (Specify 2010T)
☐ Heelproof Grate -HP -AHP (Round) or -BHP (Square)
☐ Quad Close Trap Seal (Specify Fig. 2692)

OPTIONAL MATERIALS:
☐ Bronze Body -BB
☐ Chrome Plated Strainer -CP
☐ Galvanized Cast Iron Body -G
☐ Nickel Bronze Strainer -NB
☐ Polished Bronze Strainer -PB
☐ All Stainless Steel (Specify Fig. 9700)
☐ Stainless Steel Strainers -SS [Available in 05(125) & 06(150) sizes only]

NOTE 1: Sediment Bucket -B not provided for a Hinged Grate (-H)

NOTE 2: Sediment Bucket -B not provided for a Ball Float (-BFV) or a Flapper Type (-V)

SEE PM 0457 FOR OPTIONAL STRAINER HEADS.

REV.	DATE	DESCRIPTION	BY	CKD. BY
Y	8-9-23	Removed Function	HS	CL
X	3-10-23	Added ® to "Speedi-Set"	KK	CL
W	10-8-21	Added NOTE 1 & 2	KK	JM
V	8-27-21	Edited Variations	KK	JM

WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER **2005**

FIGURE NUMBER **2005** | DRAWN BY: PJ | CHECKED BY: TD | APPROVED BY: TD | DATE: 5-17-85 | SCALE: NONE | SIZE A | DRAWING NUMBER S2005 | Y

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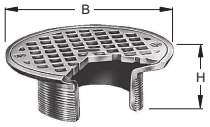
POST OFFICE BOX 3237
MONTGOMERY, ALABAMA 36109-0237 (USA)
TEL: 334-277-8520 FAX: 888-377-7818 www.jrsmith.com
CUSTOMER DRIVEN SINCE 1926
MEMBER OF:

NOTE 1: Sediment Bucket -B not provided for a Hinged Grate (-H)

NOTE 2: Sediment Bucket -B not provided for a Ball Float (-BFV) or a Flapper Type (-V)

OPTIONAL STRAINER HEADS

ROUND STRAINER



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB
Stainless Steel Strainers -SS [Available in 05(125) & 06(150) sizes only]

VARIATIONS:
*Hinged Grate (Specify Suffix -AH) (NOTE 1)
Sediment Bucket -B
Vandal Proof Screws -U

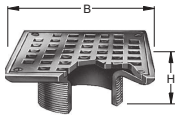
B DIA	05 (125)	06 (150)	07 (180)	08 (205)	09 (230)	10 (255)
H	2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)	2 1/2 (64)	2 3/4 (70)
X MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)	1 1/2 (38)	1 1/2 (38)
X MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)	2 1/2 (64)	2 3/4 (70)

LIGHT DUTY

SUFFIX -A

Specify Type, Size & Finish eg: A05NB
*Not available for 05" (125) size

FLAPPER TYPE BACKWATER VALVE



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS
*Hinged Grate (Specify Suffix -AH)
Vandal Proof Screws -U

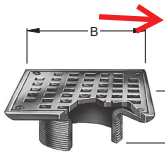
B SQ	05 (125)	06 (150)	07 (180)	08 (205)
H	2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)
X MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)
X MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)

LIGHT DUTY

SUFFIX -AV

Specify Type, Size & Finish eg: AV05NB
*Not available for 05" (125) size

SQUARE STRAINER 6" CP



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS
Flapper Type Backwater Valve (Specify Suffix -BV) 05 (125), 06 (150), 07 (180) or 08" (205) sizes only (NOTE 2)
*Hinged Grate (Specify Suffix -BH) (NOTE 1)
Sediment Bucket -B
Vandal Proof Screws -U

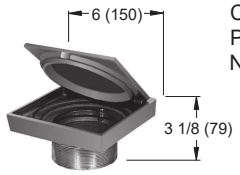
B SQ	05 (125)	06 (150)	07 (180)	08 (205)	09 (230)	10 (255)
H	2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)	2 1/4 (57)	2 1/4 (57)
X MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)	1 1/2 (38)	1 1/2 (38)
X MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)	2 1/4 (57)	2 3/8 (60)

LIGHT DUTY

SUFFIX -B

Specify Type, Size & Finish eg: B05NB
*Not available for 05" (125) size

STRAINER HEAD w/SQUARE HINGED COVER



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

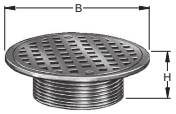
VARIATIONS:
Gasketed Water Tight Cover -GC
Secured Cover -SC
Secondary Strainer Grate-SG

LIGHT DUTY

SUFFIX -BS

Specify Type, Size & Finish eg: BSNB

REINFORCED ROUND STRAINER



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -CV) (NOTE 2)
Sediment Bucket -B
Vandal Proof Screws -U

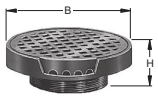
B DIA	05 (125)	06 (150)	08 (205)	10 (255)
H	2 (51)	2 (51)	2 1/2 (64)	2 3/4 (70)
MIN	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)	1 7/8 (48)
MAX	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)	2 3/4 (70)

LIGHT DUTY

SUFFIX -C

Specify Type, Size & Finish eg: C06NB

REINFORCED TRACTOR STRAINER



MATERIALS:
Cast Iron -CI
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -DV or -EV) (NOTE 2)
Sediment Bucket -B
Vandal Proof Screws -U

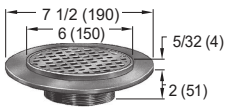
SUFFIX	B DIA	H	X MIN	X MAX
-D	07 (180)	3 1/4 (83)	2 5/8 (67)	3 1/2 (89)
-E	09 (230)	3 1/2 (89)	2 3/4 (70)	3 1/2 (89)

LIGHT DUTY

SUFFIX -D-E

Specify Type, Size & Finish eg: D07PB E09PB

TILE FLANGE



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -FV)
Holes in Flange -SH
Sediment Bucket -B
Vandal Proof Screws -U

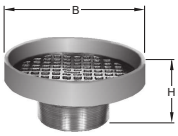
X MIN	X MAX
1 1/4 (32)	2 1/8 (54)

LIGHT DUTY

SUFFIX -F

Specify Type, Size & Finish eg: F06NB

ADJUSTABLE STRAINER HEAD



VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -F37V or F38V)
Sediment Bucket -B

MATERIALS:
Cast Iron -CI
Chrome Plated -CP
Galvanized Cast Iron -G
Polished Bronze -PB
Nickel Bronze -NB

SUFFIX	-F37	-F38
B DIA	07 (180)	09 (230)
H	3 1/4 (83)	3 1/2 (89)
X MIN	2 5/8 (67)	2 3/4 (70)
X MAX	3 1/2 (89)	3 1/2 (89)

NON-TRAFFIC

SUFFIX -F37-F38

Specify Type, Size & Finish eg: F37NB F38CP

REV.	DATE	DESCRIPTION	BY	CKD. BY
N	5-21-24	Removed Function, Rev. Var.	HS	KV
M	10-8-21	Added NOTE 1 & 2	KK	JM
L	10-26-20	Rev. Finish (Tractor Stainer)	MW	CL

FIGURE NUMBER
2005/2010 SERIES OPTIONAL STRAINER HEADS
1 0f 2

NOTE: Dimensions shown in parentheses are in millimeters.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

N | DRAWING NUMBER PM0457 SH 1 of 2 | SIZE A | SCALE NONE | DATE: 5-17-85 | APPROVED BY: TD | CHECKED BY: TD | DRAWN BY: PJ | 2010 SERIES OPTIONAL STRAINER HEADS | FIGURE NUMBER

ASSUME NO RESPONSIBILIT OR USE OF SUPERSEDED OR VOID DATA
DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

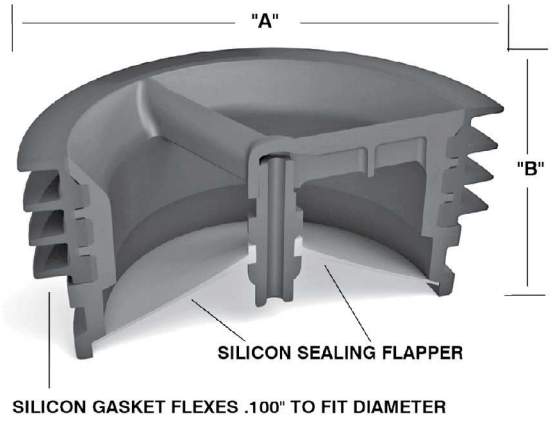
Location: _____

MIFAB® MI-GARD®

FLOOR DRAIN TRAP SEAL

Specification: MIFAB® MI-GARD® Series inline floor drain trap seal with UV resistant ABS plastic frame, silicon rubber sealing flapper and four flexible sealing ribs. Tested and certified to the ASSE 1072 Standard and listed with IAPMO and I.C.C. Specify connection size (1 1/2", 2", 3", 3 1/2", 4" or 6").

Function: Used in the outlet connections of floor drain bodies, or the inside of floor drain strainers to seal the opening to prevent odors, sewer gases, and insects from entering up through the floor drain grate. The MI-GARD®'s four flexible silicone sealing ribs ensure easy installation into openings that have variations in size. The MI-GARD® will open to allow drainage and close when there is no water flow.



BOTTOM OF BODY

TOP OF STRAINER

MODEL NO.	"A" (PIPE SIZE)	"B" (HEIGHT)
◯ MI-GARD-1.5	1-1/2" (38)	2" (51)
◯ MI-GARD-2 ←	2" (51)	2" (51)
◯ MI-GARD-3	3" (76)	2" (51)
◯ MI-GARD-3.5	3 1/2" (89)	2" (51)
◯ MI-GARD-4	4" (102)	2" (51)
◯ MI-GARD-6	6" (152)	2" (51)

MI-GARD® prevents the following from entering through the top of floor drains:
• Odors and sewer gases • Insects

Not intended to be used in lieu of a trap seal primer. 6" MI-GARD not IAPMO certified.

Note: The MI-GARD-6 is designed in accordance with industry standards but is not listed.

CALIFORNIA PROPOSITION 65 WARNING. This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Job Name: _____ Page No: _____

Section No: _____ Contractor: _____

Schedule No: _____ Purchase Order No: _____

USA: 1-800-465-2736 www.mifab.com CAN: 1-800-387-3880

HB

For Commercial Applications

Job Name _____ Item Designation _____

Job Location _____ Contractor _____

Engineer _____ Representative _____

Wall Thickness: _____ Inlet: P__ C__ (P1__ EP__ ***MADE TO ORDER, NO RETURN***) Finish: CH__ BR__ PB__

Woodford
Model 67
Backflow Protected
Automatic Draining Freezeless Wall Hydrant

The Model 67 is an automatic draining, freezeless wall hydrant with hose connection Backflow Protection. The hydrant drains as handle is shut off, *even if hose is attached.* The Model 67 is intended for irrigation purposes and is designed to blend in with modern architecture for installation on restaurants, schools, office buildings, churches, apartments, motels, stores, shopping centers and industrial buildings.

Sizes: 4" - 24" (in 2" increments)
CC (Close Coupled) for non-freezing climates

Features:

- Drain port under nozzle diverts water away from building
- Red Brass head & valve body
- 3/8" solid brass operating rod
- Copper casing tubes
- Hardened stainless steel operating stem
- One piece valve plunger
- 4 inlet options
- Loose tee key operation
- No Lead Solder - All joints
- Supplied with adjustable wall clamp

Specifications:

PATENTED HIGH FLOW DOUBLE CHECK BACKFLOW PREVENTER

- NIDEL® Model 50HA with ¾ inch male hose thread
- ASSE Standard 1052 approved
- Field Testable
- Two Independent Check Valves
- Drains automatically when hose is removed
- No spray back

- **Maximum Working Pressure:** 125 p.s.i.
- **Maximum Temperature:** 120° F

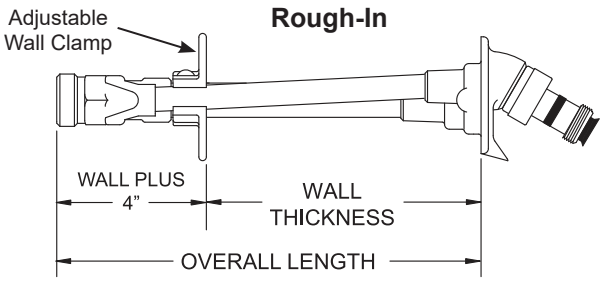
Specify as follows:

Wall hydrant shall be Woodford Model 67, automatic draining with ASSE 1052 approved NIDEL® Model 50HA high flow double check backflow preventer. ¾" inlet and outlet (specify type of inlet). Hardened stainless steel operating stem and one-piece valve plunger to control both flow and drain functions. Exterior finish to be Chrome Plated (options: Polished Brass or Rough Brass). Loose tee key to be furnished with each hydrant. Intended for irrigation purposes. Wall thickness to be _____ inches.

Exterior Finish:

Standard - Chrome (CH)
Optional - Brass (BR) Polished Brass (PB)
Fits one standard modular brick course.

Rough-In



Overall Length = Wall Thickness + Inlet
Close Coupled Overall Length = 5"

Inlet Options

P - 3/4" Female Pipe Thread
P1 - 1" Male Pipe Thread
C - 3/4" Copper Water Tube
EP - Union Elbow with 3/4" Male Pipe Thread

Approval *Approval* *Approval* *Approval* *Approval*

WOODFORD MANUFACTURING COMPANY, LLC
2121 WAYNOKA ROAD
COLORADO SPRINGS, CO 80915
Phone (800) 621-6032
Website: www.woodfordmfg.com
Email: sales@woodfordmfg.com

LAV

Ladena®

21" rectangular undermount bathroom sink

K-2214

Features

- Rectangular basin with curved bottom
- Overflow drain
- No faucet holes; requires wall- or counter-mount faucet
- 1193643 clamp assembly

Material

- Vitreous china

Installation

- Undermount

Recommended Products/Accessories

K-8998 P-Trap
K-23726 Drain treatment
K-23725 Cast iron cleaner

ADA

Codes/Standards

ASME A112.19.2/CSA B45.1
ADA
ICC/ANSI A117.1
IAPMO Certification

KOHLER® One-Year Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

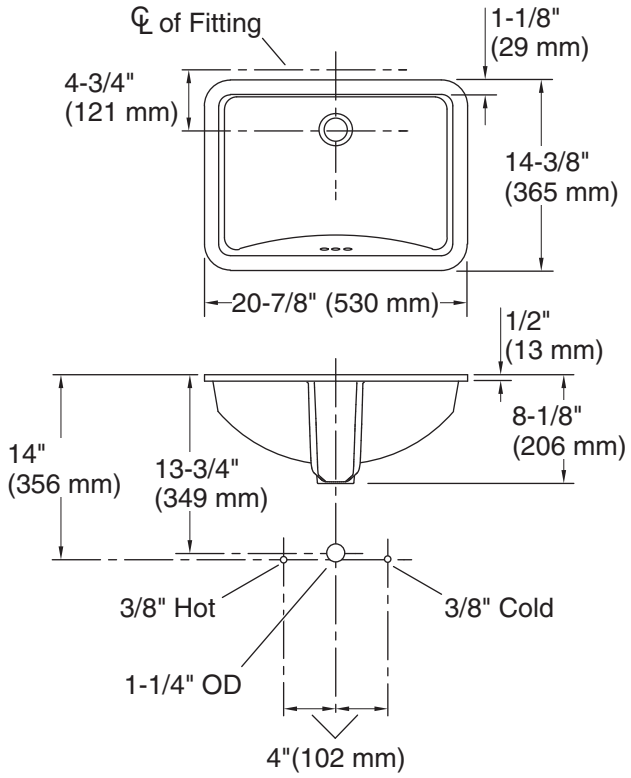
Color tiles intended for reference only.

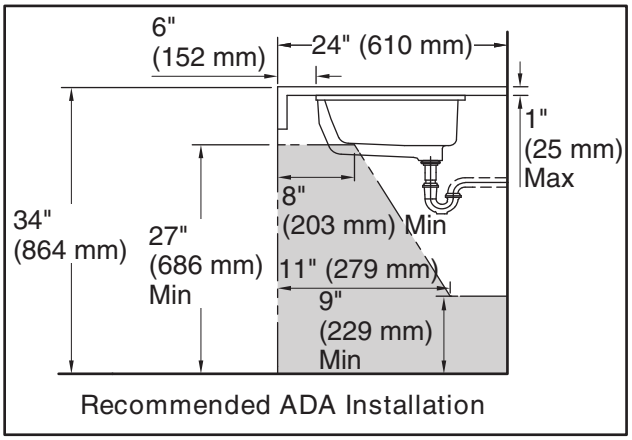
Color	Code	Description
	0	White
	96	Biscuit
	NY	Dune
	95	Ice™ Grey
	58	Thunder™ Grey
	7	Black Black™

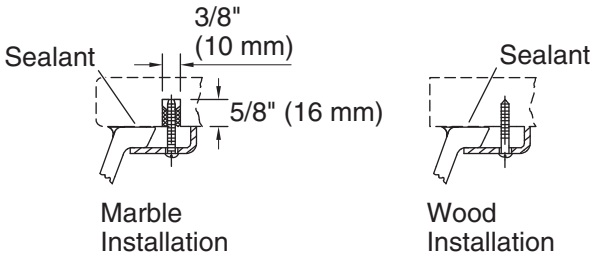
Ladena®

21" rectangular undermount bathroom sink

K-2214







Technical Information

All product dimensions are nominal.

Bowl area:	Length: 18-5/8" (473 mm) Width: 12-1/4" (311 mm) Water depth: 4-5/8" (117 mm)
With overflow:	Yes
Drain hole:	1-3/4" (44 mm)
Template:	1053195-7, required, not included

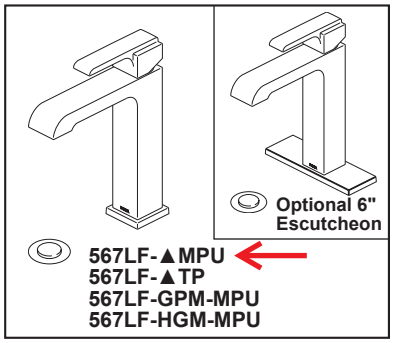
Notes

Install this product according to the installation instructions.

The product diagram is based on the K-8998 adjustable P-trap with 1" (25 mm) of tailpiece exposed.

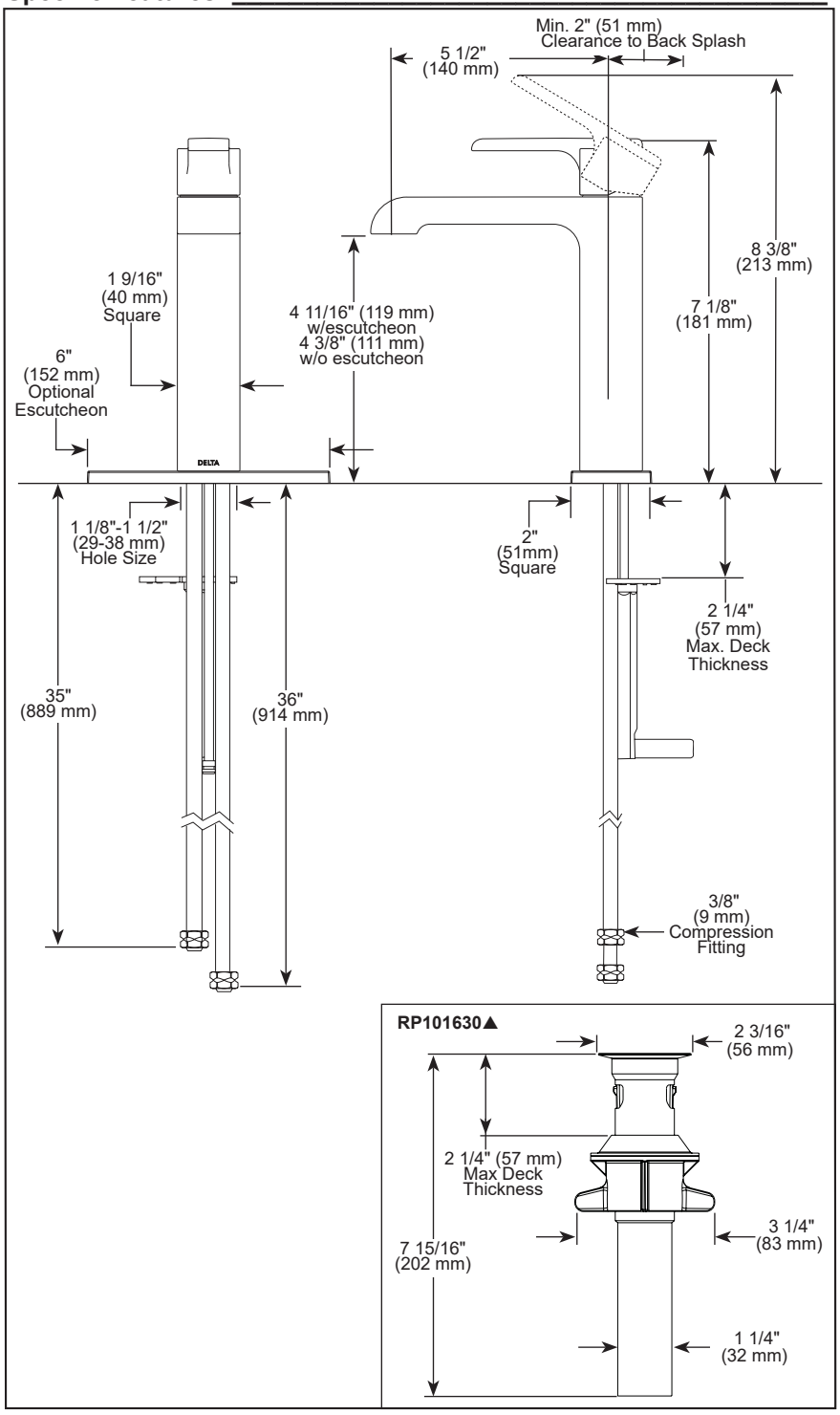
NOTICE: Countertop manufacturer or cutter must use the current product template available at www.kohler.com, or by calling 1-800-4KOHLER. Kohler Co. is not responsible for cutout errors when the incorrect cutout template is used.

ADA compliant when installed to the specific requirements of these regulations.



Submitted Model No.: _____

Specific Features: _____



▲ Designate Proper Finish Suffix

Delta reserves the right (1) to make changes in specifications and materials, and (2) to change or discontinue models, both without notice or obligation. Dimensions are for reference only. See current full-line price book or www.deltafaucet.com for finish options and product availability.

DSP-L-567LF-MPU Rev. K

DELTA

see what Delta can do℠

BATHROOM FAUCET

- Ara® Bath Collection
- Single Handle Deck Mount

STANDARD SPECIFICATIONS:

- Max. flow rate 1.2 gpm @ 60 psi, 4.5 L/min @ 414 kPa
- GPM indicates max. flow rate 1.0 gpm @ 60 psi, 3.8 L/min @ 414 kPa
- HGM indicates max. flow rate 0.5 gpm @ 60 psi, 1.9 L/min @ 414 kPa
- One or three hole mount (escutcheon optional, included)
- Diamond coated ceramic cartridge
- 1/4" O.D. straight, staggered PEX supply lines
- Optional red/blue indicator ring provided with model
- Models have metal drain with push pop-up type fitting with plated flange and stopper, no lift rod hole
- Solid metal fabricated spout

WARRANTY

- Parts and Finish - Lifetime limited warranty; or for commercial purchasers, 10 years for multi-family residential (apartments and condominiums) and 5 years for all other commercial uses, in each case from the date of purchase.
- Electronic Parts and Batteries (if applicable) - 5 years from the date of purchase; or for commercial purchasers, 1 year from the date of purchase. No warranty is provided on batteries.

WaterSense Meets EPA Criteria
Certified by CSA Group

COMPLIES WITH:

- ASME A112.18.1/ CSA B125.1
- ASME A112.18.2 / CSA B125.2
- Indicates compliance to ICC/ANSI A117.1
- EPA WaterSense® - applies to 567LF-MPU, 567LF-TP, 567LF-GPM-MPU only

Delta Faucet Company
55 E. 111th Street, Indianapolis, IN 46280
350 South Edgeware Road, St. Thomas, ON N5P 4L1

Model ST70

Lead Free Lavatory Tempering Valve

APPLICATION:

The Acorn ST70 is an ASSE 1070 certified, lead free tempering valve that protects against dangerously hot water in any commercial sink or lavatory application. This valve can be used with any type of faucet for maximum flexibility and can accommodate a single lavatory or up to 8 hand washing stations having a 0.5 gpm flow rate.

ST70-38

ST70CP-12

Federal Public Law 111-380 (No Lead)

Patent Pending

FEATURES:

- ✧ Lead Free solid brass body with corrosion resistant and lead free internal components.
- Valve body available in rough brass or rough chrome plated.
- Integral checks with screens to prevent backflow and to filter debris from entering the valve.
- Temperature adjustment is made using a allen wrench. A locknut on the bonnet prevents unauthorized or accidental temperature adjustment.
- Commercial quality thermal actuator provides repeatable, reliable performance.
- IAPMO certified to ASSE 1070 and CSA B125.3.
- Factory set to 105° F (41° C) and field adjustable.

SPECIFICATIONS:

Valve Specifications:

Maximum Operating Pressure: ..... 125 psi (861 kpa)

Flow Rate @ 45 psi (310 kpa) differential:

ST70-12: ..... 4.5 gpm (17 lpm)

ST70-38: ..... 4.0 gpm (15 lpm)

Minimum Flow Rate*: ..... 0.4 gpm (1.5 lpm)

Maximum Hot Water Temp: ..... 180°F (82°C)

Minimum Hot Water Supply Temp**: ..... 5°F (3°C) Above Set Point

Temperature Range*: ..... 85-115°F (29-46°C)

Connections ..... 1/2” NPT or 3/8” Compression

ST70-12

PRESSURE DROP PSID (KPA)	Cv	5 (34)	10 (69)	15 (103)	20 (138)	30 (207)	45 (310)	60 (414)
FLOW RATE GPM (LPM)	0.7	1.5 (5.7)	2.1 (8)	2.6 (9.8)	3 (11.4)	3.7 (14)	4.5 (17)	5.2 (19.7)

ST70-38

PRESSURE DROP PSID (KPA)	Cv	5 (34)	10 (69)	15 (103)	20 (138)	30 (207)	45 (310)	60 (414)
FLOW RATE GPM (LPM)	0.6	1.3 (5)	1.9 (7.1)	2.3 (8.7)	2.7 (10)	3.3 (12.4)	4 (15)	4.6 (17.5)

** In accordance with ASSE 1070*

*** Under Normal Operating Conditions*

✧ The wetted surface of these valves contacted by consumable water contains less than 0.25% of lead by weight in conformance with national lead free law.

GUIDE SPECIFICATION:

The lavatory tempering valve shall be independent lab certified per ASSE 1070 and CSA standards and shall have a solid brass body with corrosion resistant internal components. It shall include integral checks with screens to prevent backflow and to filter debris from entering the valve. Temperature adjustment shall be made using an allen wrench and a locknut on the bonnet to prevent unauthorized or accidental temperature adjustment. Valve shall provide 4.0 gpm (15 lpm) with 3/8” compression connection and 4.5 gpm (17 lpm) capacity at 45 psi (310 kpa) differential with a certified minimum flow rate of 0.4 gpm (1.5 lpm). Temperature range shall be 85-115° F (29-46° C). Valve shall be Acorn model ST70.

Submittal # **ST70**
Revised: 06/05/14

Certifications:

ASSE 1070
CSA B125.3

Est. 1954
ACORN ENGINEERING COMPANY
Manufacturer of Engineered Products

Member of Morris Group International™

ACORN ENGINEERING COMPANY
P.O. BOX 3527
City of Industry, CA
91744, U.S.A.
Phone 800-488-8999
626-336-4561
Fax 626-961-2200
www.acorneng.com

ACORN CONTROLS™

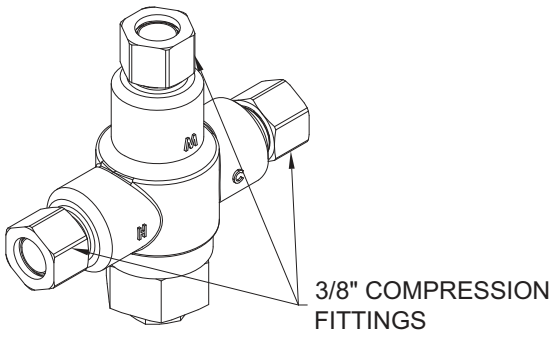
VALVE SELECTION:

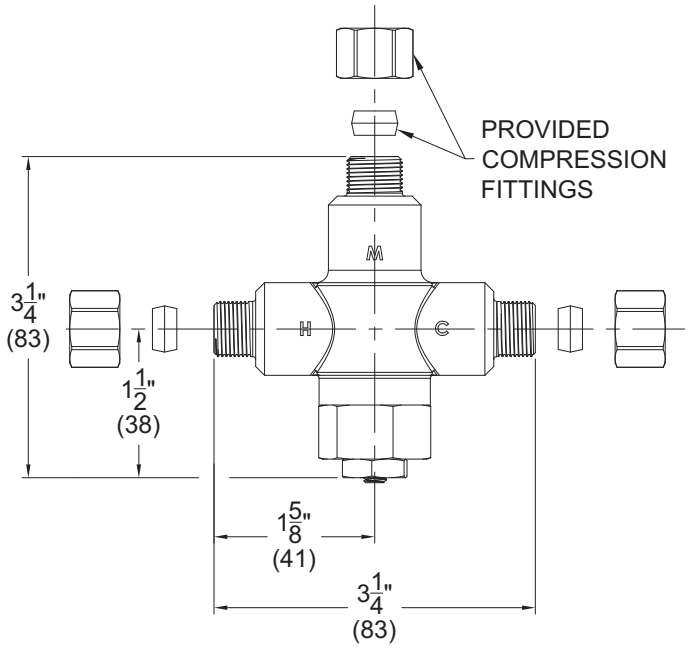
- ❑ ST70-12 Brass Valve Body With 1/2” NPT Connections
- ❑ ST70CP-12 Rough Chrome Plated Body Valve With 1/2” NPT Connections
- ☒ ST70-38 Brass Valve Body With 3/8” Compression Connections
- ❑ ST70CP-38 Rough Chrome Plated Valve Body With 3/8” Compression Connections

ACCESSORIES:

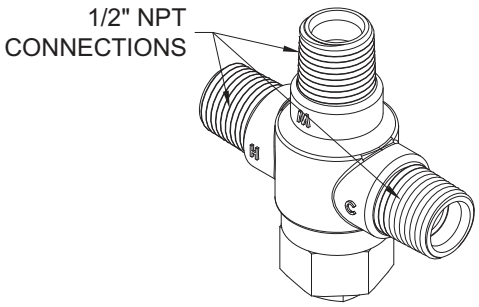
- ❑ -BCT 3/8” Brass Compression Tee
- ❑ -BCT-C 3/8” Brass Compression Tee, Chrome Plated
- ❑ -MB Mounting Bracket

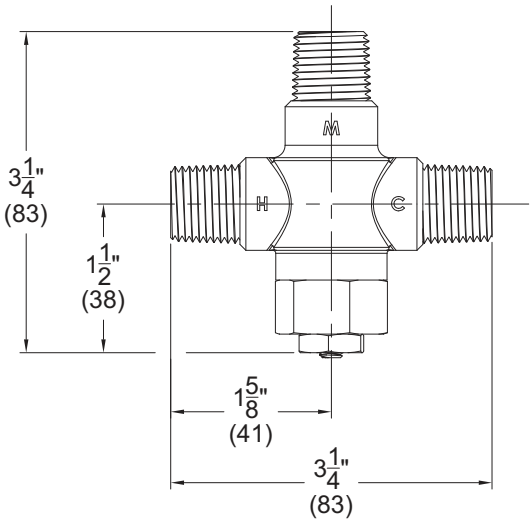
TECHNICAL DIMENSIONS:





ST70-38





ST70-12

ST70 Revised: 06/05/14

Acorn Controls warrants that its products are free from defects in material or workmanship under normal use and service for a period of one year from date of shipment. Acorn’s liability under this warranty shall be discharged solely by replacement or repair of defective material, provided Acorn is notified in writing within one year from date of shipment, F.O.B. Industry, California.

SELECTION SUMMARY & APPROVAL FOR MANUFACTURING

Model Number & Options_____ Quantity_____

Company_____

Contact_____ Title_____

Signature (Approval for Manufacturing)_____ Date_____

ACORN CONTROLS™
800-488-8999
or 626-336-4561
www.acorneng.com

McGuire Manufacturing Co., Inc.
60 Grandview Court
Cheshire, Connecticut 06410
(203) 699-1801 Fax (203) 699-1813
customerservice@mcguiremfg.com mcguiremfg.com

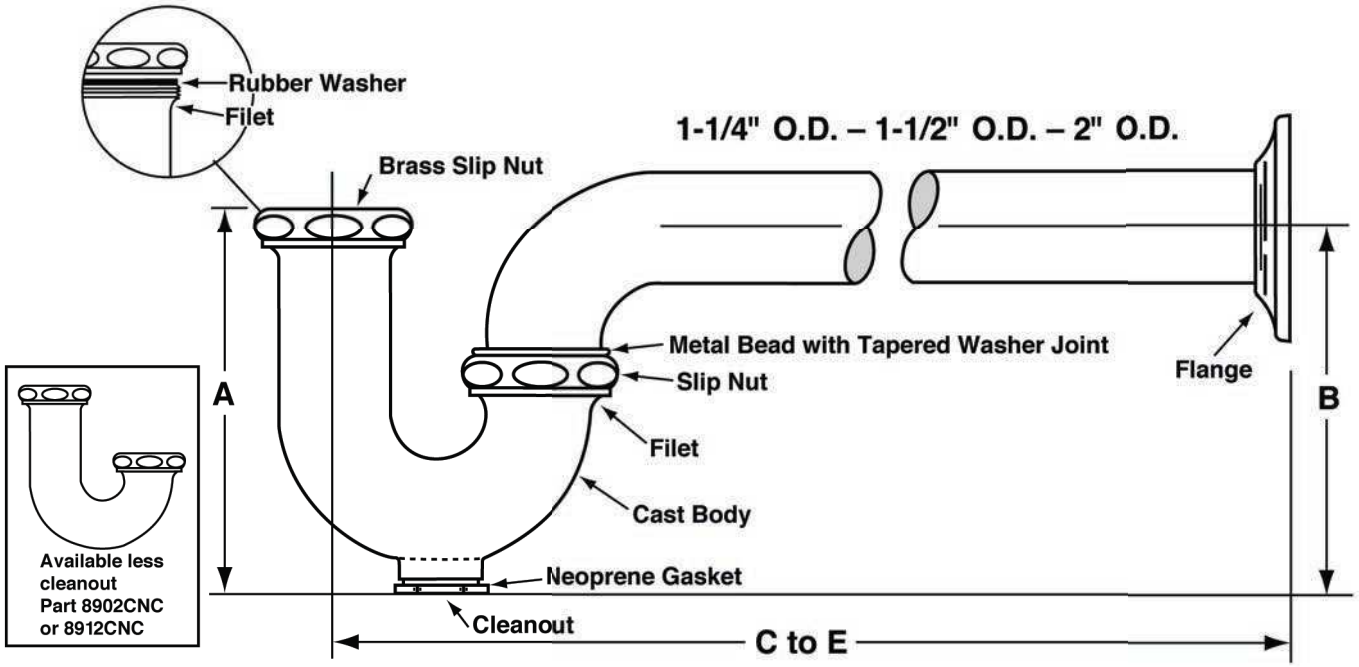
PRODUCT SPECIFICATION

Part No.

8872C, 8902C, 8902CNC, 8912C, 8912CNC, 8903C, 8904C

Cast Body P-Trap With or Without Cleanout

Job Name: **Submittal Number:**



PROFESSIONAL LINE

ROUGHING MEASUREMENTS					
NO.	TRAP DIMENSIONS		A	B	C to E
	INLET	OUTLET			
8872C	1-1/4"	1-1/4"	4-1/2"	4-1/4"	11-1/2"
8902C	1-1/4"	1-1/2"	5"	5-1/2"	11-1/2"
8902CNC	1-1/4"	1-1/2"	4-5/8"	4-3/4"	11-1/2"
8912C	1-1/2"	1-1/2"	5"	5-1/2"	11-1/2"
8912CNC	1-1/2"	1-1/2"	4-5/8"	4-1/8"	11-1/2"
8903C	1-1/2"	2"	5"	6"	13-3/4"
8904C	2"	2"	5"	6"	13-3/4"

FED SPEC W.W.P. 541
CAST BRASS P TRAP
MINIMUM SEAL 2"

See options and accessories section for details on product variations.

ASME A112.18.2/CSA B125-2

Specifications:

P-Trap shall be chrome plated cast brass body (with, without) cleanout, with 17 gauge seamless tubular wall bend, cast brass slip nuts. Reducing washers shall be used with reducing cast brass nut. With (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange.
P-Trap shall be McGuire "Classic" Professional Line
Trap shall be certified by CSA or other recognized testing authority. Trap shall bear manufacturer and testing marks.

WARNING:
This product can expose you to chemicals including lead, which is known to the State of California to cause cancer, and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

McGuire Manufacturing Co., Inc.
60 Grandview Court
P.O. Box 746 • Cheshire, CT 06410
203-699-1801 • Fax: 203-699-1813
www.mcguiremfg.com

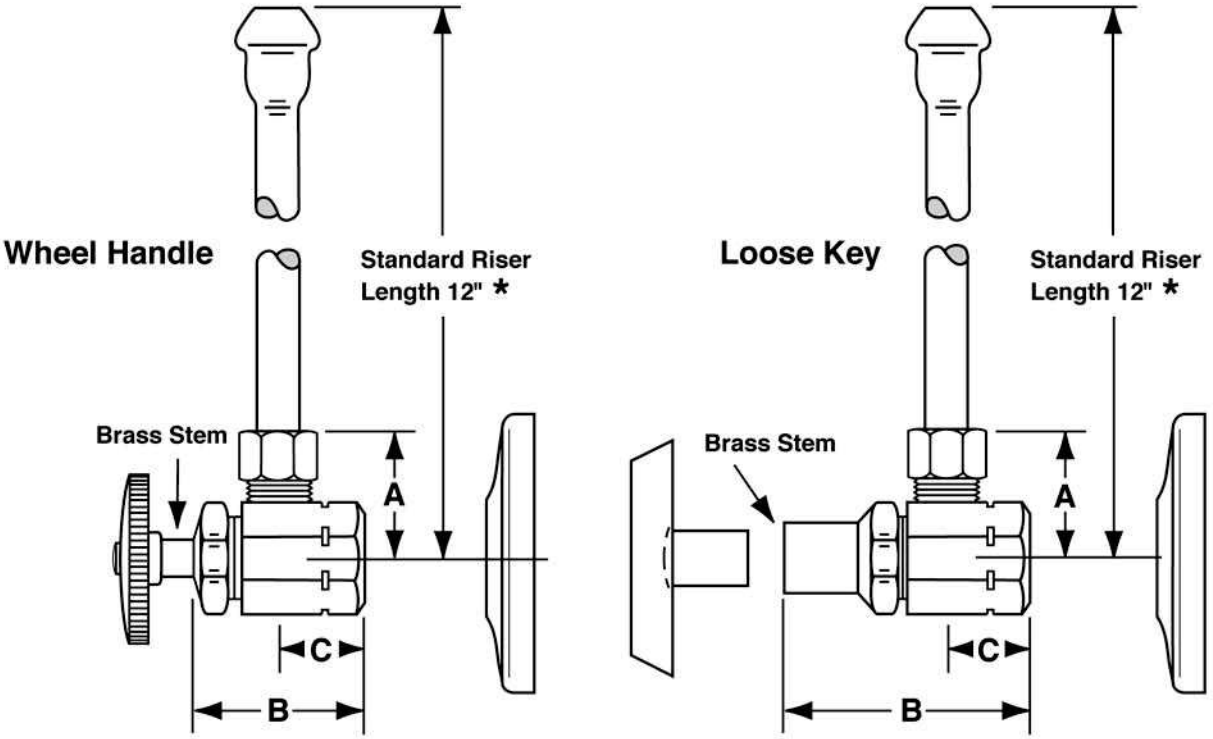
PRODUCT SPECIFICATION

Part No.

LF2165, LF2165LK, LF2167, LF2167LK

Lavatory Supply 1/2" I.P.S. x O.D.

Job Name: _____ **Submittal Number:** _____



NO.	DESCRIPTION	ROUGHING MEASUREMENTS		
		A	B	C
LF2165	1/2" I.P.S. x 3/8" O.D.	1-3/16"	1-1/2"	3/4"
LF2165LK	1/2" I.P.S. x 3/8" O.D.	1-3/16"	2-1/4"	3/4"
LF2167	1/2" I.P.S. x 1/2" O.D.	1-3/16"	1-1/2"	3/4"
LF2167LK	1/2" I.P.S. x 1/2" O.D.	1-3/16"	2-1/4"	3/4"

LOW-LEAD UPC

LK designates Loose Key

* See options and accessories section for details on product variations.

Specifications:

Supply kit shall include low lead chrome plated brass supply stop valves with full turn brass stem, no plastic, (12, 15, 20) inch chrome plated risers and (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange. Inlet shall be (3/8, 1/2) inch (IPS, compression). Outlet shall be (3/8, 1/2) inch compression. Supply kit shall be McGuire _____. Supply kit shall be low lead certified by recognized authority and bear manufacturer and testing mark.

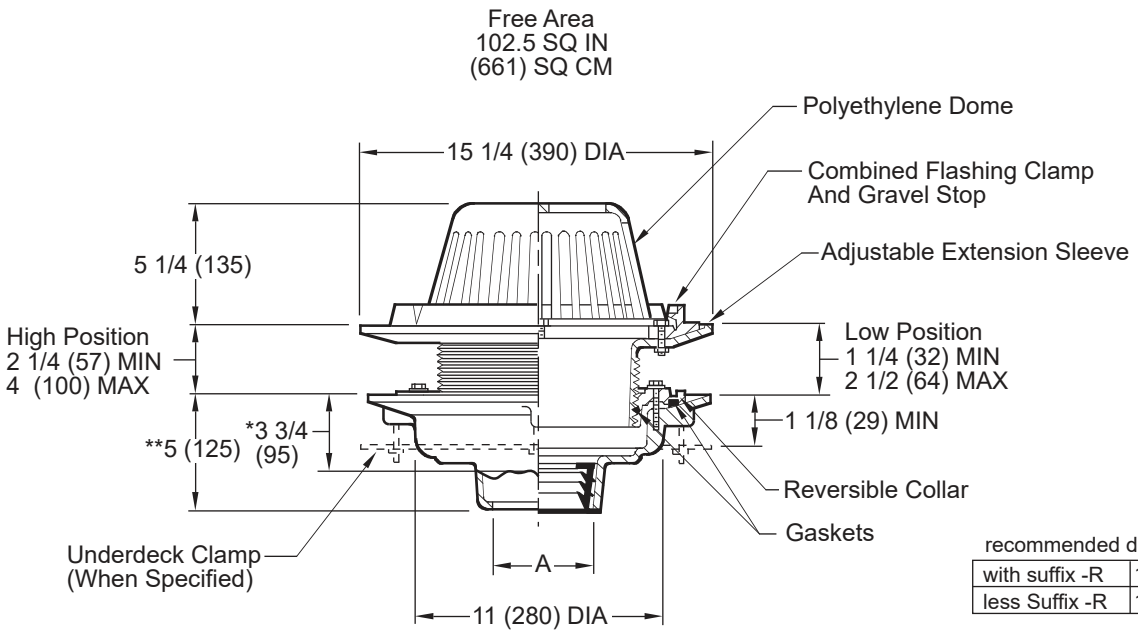
RD

SMITH® JAY R. SMITH MFG. CO.®
MEMBER OF MORRIS GROUP INTERNATIONAL
POST OFFICE BOX 3237
MONTGOMERY, ALABAMA 36109-0237 (USA)
TEL: 334-277-8520 FAX: 888-377-7818 www.jrsmith.com
CUSTOMER DRIVEN SINCE 1926
MEMBER OF:

LOCATION

GENERAL PURPOSE ROOF DRAINS

ROOF DRAIN WITH ADJUSTABLE EXTENSION



recommended deck opening

with suffix -R	17 (430) DIA
less Suffix -R	14 (355) DIA

*This dimension to internal stop of Speedi-Set® Gasket
**Same for Caulk, NO-HUB and Speedi-Set®, 3 3/4 (95) for Threaded

A (Pipe Size) = 02(50), 03(75), 04(100), 05(125) or 06(150)

☐ Fig. 1015C . . . . . CAULK OUTLET
☐ Fig. 1015Y . . . . . NO-HUB OUTLET ←

REGULARLY FURNISHED:
Duco Cast Iron Body with Adjustable Extension Sleeve, Reversible Collar, Combined Flashing Clamp and Gravel Stop with Polyethylene Dome.

Note: See reverse side for assembly instructions.

NOTE: Dimensions shown in parentheses are in millimeters.

VARIATIONS:
- ☐ Expansion Joint (Specify Fig. 1710)
- ☐ "L" Shaped Underdeck Clamp -CL
- ☐ L Speedi-Set® Service Weight 02(50), 03(75) & 04(100)" sizes only
- ☐ LXH Speedi-Set® Extra Heavy 02(50), 03(75) & 04(100)" sizes only
- ☐ Secondary Flashing Clamp -C2
- ☐ Sump Receiver -R ←
- ☐ Underdeck Clamp -C ←
- ☐ Vandal Proof Dome -U
- ☐ Side Outlet Drain (Specify Fig. 1025)
- ☐ T Threaded Outlet

OPTIONAL MATERIALS:
- ▲ ☐ Aluminum Dome -AD ←
- ▲ ☐ Cast Iron Dome -CID
- ☐ Galvanized Cast Iron -G
- ▲ ☐ Rough Bronze Dome -RBD

▲Optional domes' free area are as follows:

Aluminum	98 (632)
Cast Iron	80 (516)
Bronze	95 (613)

REV.	DATE	DESCRIPTION	BY	CKD. BY
Q	9-27-23	Removed Function	HS	CL
P	2-23-23	Added ® to "Speedi-Set"	KK	CL
N	7-30-19	Removed NOTE	MW	CL
M	8-18-15	Added Flow Rate Note	TBW	BW

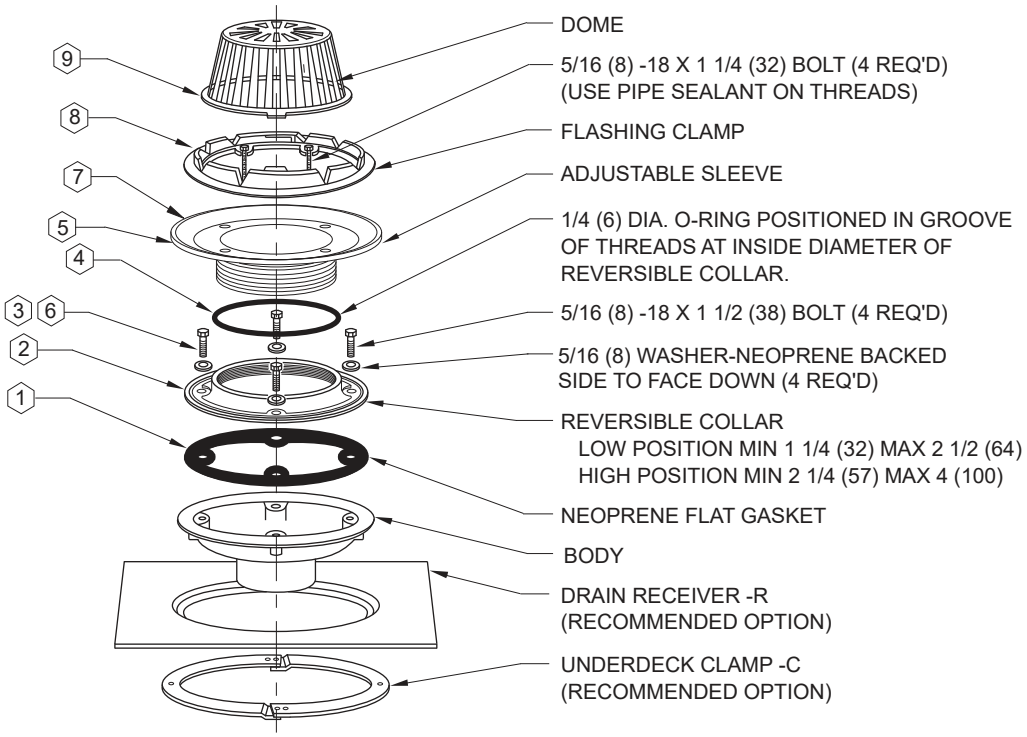
WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER 1015

FIGURE NUMBER 1015 | DRAWN BY: CMB | CHECKED BY: VGD | APPROVED BY: JD | DATE: 12-19-84 | SCALE: NONE | SIZE A | DRAWING NUMBER S1015 | Q

SMITH® JAY R. SMITH MFG. CO.®
MEMBER OF MORRIS GROUP INTERNATIONAL
POST OFFICE BOX 3237
MONTGOMERY, ALABAMA 36109-0237 (USA)
TEL: 334-277-8520 FAX: 888-377-7818 www.jrsmith.com
CUSTOMER DRIVEN SINCE 1926
MEMBER OF:

LOCATION

ADJUSTABLE ROOF DRAIN



1. Position flat gasket on drain body, align holes in gasket with holes in body.
2. Determine if reversible collar is to be installed in the low (1 1/4" to 2 1/2") or high (2 1/4" to 4") position.

2a. Place reversible collar on body and align holes in collar with holes in gasket and body.

3. Secure collar to body with 1 1/2" long bolts insuring neoprene backed washers are installed with neoprene side facing down at proper locations between top of reversible collar and bolt head. Tighten bolts in the following manner: 1, 3, 2 & 4. Tighten No. 1 bolt approximately one full turn then No. 3, No. 2 and No. 4 (same manner as for No. 1). Continue this method until reversible ring has been secured evenly all around.
4. Wipe “O” Ring recess in reversible collar clean. Insert dry “O” Ring in groove of threads at inside diameter of reversible collar. Lubricate the face of “O” Ring in it’s entirety with (1) tube of the lubricant provided and remaining threads.
5. Lubricate liberally the entire lead-in chamfer and first 2 threads of the adjustable sleeve. Thread adjustable sleeve into reversible collar and adjust to required height. Do not exceed minimum/maximum adjustment dimensions.
6. Check bolts a final time to insure tightness.
7. Run waterproofing membrane over top of adjustable sleeve to inside of bolt circle.
8. Install flashing clamp and secure with (4) bolts, use pipe sealant on threads. Again tighten bolts in the 1, 3, 2, 4 manner. (See 3)
9. Install Dome

NOTE: Dimensions shown in parentheses are in millimeters.

REV.	DATE	DESCRIPTION	BY	CKD. BY
J	7-30-19	Removed NOTE	MW	CL
H	8-18-15	Added Flow Rate Note	TBW	BW
G	1-13-15	Rev. Callouts, Text	TBW	CL
F	12-15-06	Rev. Dwg.	RN	CL

WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER 1015BS

FIGURE NUMBER: 1015BS | DRAWN BY: EMB | CHECKED BY: MCD | APPROVED BY: TD | DATE: 6-29-88 | SCALE: NONE | SIZE A | DRAWING NUMBER S1015BS | J

RH

The Woodford, ASSE 1057 listed, SRH Sanitary Roof Hydrant is intended for irrigation purposes and to provide water, in any weather condition, on commercial building roofs. Applications include window washing, cleaning of condenser coils, cooling towers, green roofs and other types of roof top equipment. The SRH is backflow protected with a field testable ASSE 1052 double check backflow preventer.

The SRH does not require 1) a drain line from the valve body located inside the building or 2) the removal of vacuum breaker or use of a diverter to protect from freezing.

The SRH-MS *with* Mounting System allows for installation flexibility. It is not necessary to install hydrant when hydrant support is mounted to the roof. The hydrant support utilizes a 3″ diameter opening that allows the hydrant to be installed or easily removed at a later time. All necessary mounting hardware for proper installation on a commercial roof is supplied, including a 2 degree shim for pitch adjustment.

Hydrant Features:

- ASSE 1057 Listed
- No Drain Line Required - *With the hose removed*, a venturi action draws water out of the internal reservoir and discharges out the backflow preventer.
- Superior reservoir evacuation times without removing the backflow preventer.
- Variable flow plunger for longer life is not easily damaged and assures proper shut-off.
- Large easy to open lift handle.
- Adjustable link for easy adjustment and positive lever lock tension.
- All hydrant repairs can be made from top without removing hydrant.

Specifications:

- Hose Connection Backflow Preventer:
  - Model 50H with 3/4″ hose connection
  - ASSE 1052 Listed
  - Field Testable Dual Check holds against 125 psi backflow pressure
- ¾″ NPT female inlet connection.
- 1 ½″ U.S. made galvanized pipe.
- **Maximum Working Pressure:** 100 p.s.i.
- **Maximum Temperature:** 120° F

SRH WARNING	Supply PSI	Run Time
After each use, run hydrant without a	60	5 seconds
hose to ensure proper evacuation.	25	15 seconds

Mounting System: *(Can be ordered Separately)*

- Cast iron Hydrant Support
- Cast iron Under Deck Flange
  - 4 bolts draw tight against the roof decking and the hydrant support.
  - 3 clamp screws tighten against the hydrant pipe to secure the hydrant's vertical position through the roof.
- Well Seal seals tight between the hydrant support and hydrant pipe.
- EPDM Boot covers well seal and top of hydrant support.
- 2° Shim is supplied, if needed, for installation on pitched roofs.

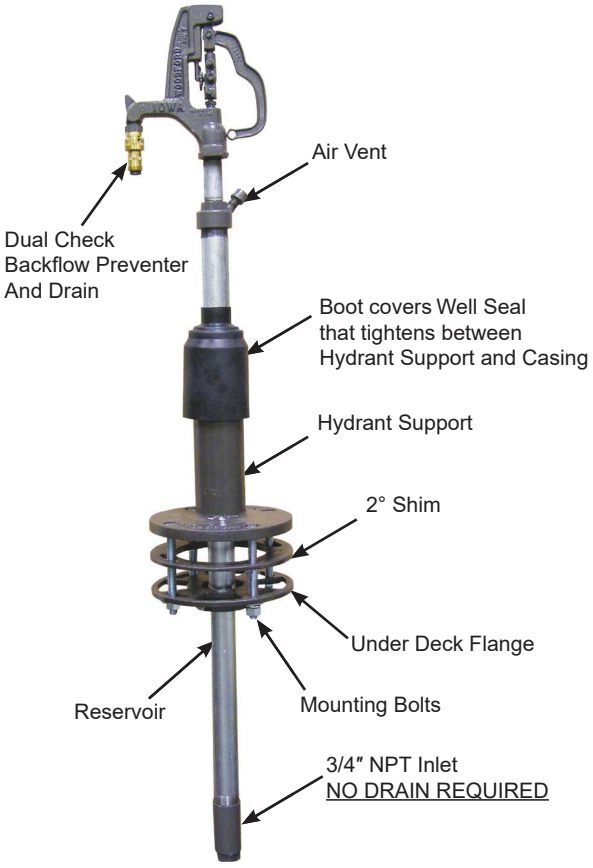
Patent Informatioin: https://www.woodfordmfg.com/patents/

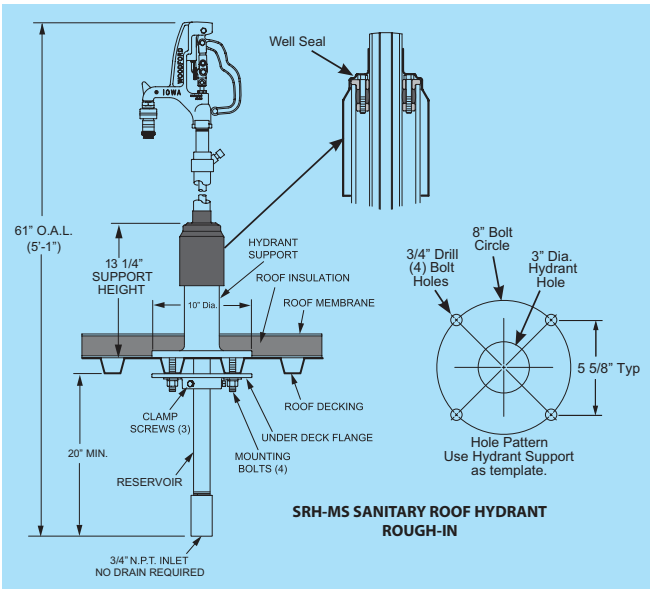
For Installation / Troubleshooting Instructions go to www.woodfordmfg.com or call 1-800-621-6032

WOODFORD

Freezeless
Sanitary Roof Hydrant
No Drain Line Required!
Model SRH-MS

Can be ordered with or without Mounting System (MS).

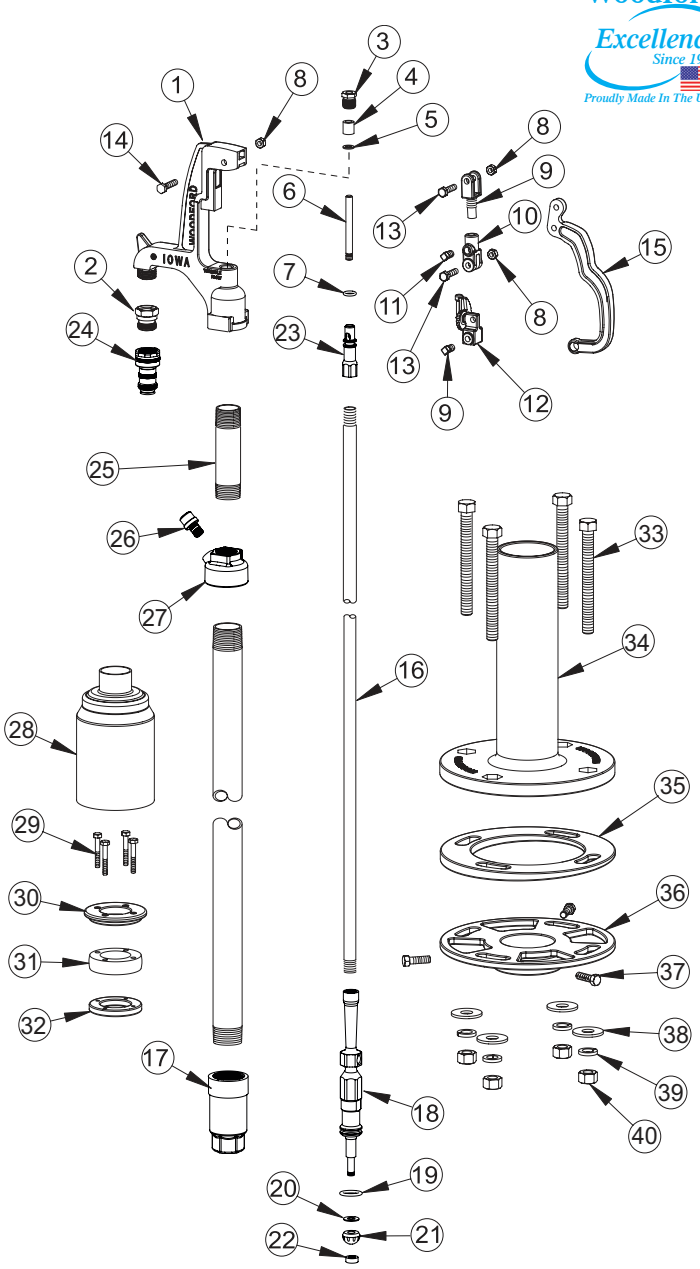




MODEL SRH-MS PARTS LIST

ITEM	PART#	DESCRIPTION
	15126	SRH Head Assembly (Includes Items 1-15, 23 & 24)
1	10632	SRH Head
2	10004	3/4" Brass Hose Nozzle
3	10100	Packing Nut
4	10101	Packing
5	10102	Packing Support Washer
6	15121	Brass Rod Stem
7	10117	O-Ring - 206
8	10206	Hex Nut (3)
9	10614	RH Upper Link
10	15242	RH Lower Link (Includes Item 11)
11	10019	Set Screw (2)
12	15243	RH Cam & Clevis Assembly
13	10020	Link Bolt (2)
14	10021	Lever Bolt
15	10613	RH Lever
16	10024	Operating Pipe
17	15122	Valve Body (3/4" NPT Inlet)
18	15123	Venturi Assembly
19	10118	Valve Body O-Ring
20	50027	Support Washer
21	51013	Ball Valve Rubber
22	50028	Round Brass Nut
23	10116	Sealing Head Coupling
24	50H-BR	50H Backflow Preventer
25	15120	Upper Pipe Assembly
26	15124	SRH Vent Assembly
27	15125	SRH Casing Cover
28	10608	RH Boot, EPDM
29	10625	Bolt, Allen Head 1/4-20 X 1 3/4" (4)
30	10626	Well Seal-1 1/2", Top
31	10119	Well Seal-1 1/2", EPDM
32	10627	Well Seal-1 1/2", Bottom
33	10584	Bolt, Hex Head 5/8-11 X 6" (4)
34	10579	Hydrant Support, Casting
35	10581	2° Shim, Casting
36	10580	Under Deck Flange
37	10607	Screw, Clamp 3/8-16 Hex Head X 1 3/4" (3)
38	10604	Washer, Plain 5/8 (4)
39	10605	Washer, Lock 5/8 (4)
40	10585	Nut, Hex 5/8-11 UNC (4)
	RK-SRH	Repair Kit (Includes items 3-7, 19-22)
	RK-RHL	Repair Kit (Includes items 8-15)

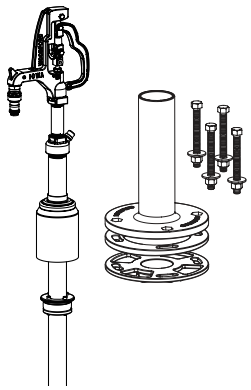
Woodford Excellence Since 1929
Proudly Made In The U.S.A.



When ordering, specify SRH part number option listed below.

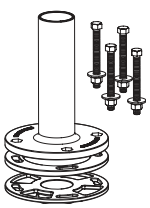
Part# SRH-MS Consists of the complete Roof Hydrant system:
Qty.1 **SRH** Hydrant shipped in 1 carton.
Qty. 1 **RH-MS** Mounting System shipped in 1 carton.

Total Shipping Wt.
2 cartons: 50 lbs



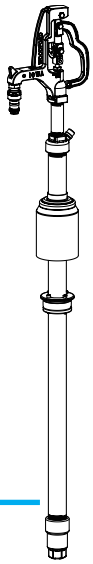
Part# RH-MS
Carton contents consists of:
Mounting System/ Rough-In Components (Parts 33-40 above)
- Hydrant Support
- 2° Shim,
- Under Deck Flange
- Mounting Bolts, Nuts, Washers.

Shipped in 1 Carton.
Shipping Wt. - 30 lbs



Part# SRH
Carton contents consists of:
- Hydrant Assembly (Parts 1-32 above)
- Well Seal (Parts 28-32 above)
- Boot (Part 28 above)

Shipped in 1 Carton.
Shipping Wt. - 20 lbs



For more information contact...

WOODFORD MANUFACTURING COMPANY, LLC

2121 Waynoka Road, Colorado Springs, Colorado 80915 • **Phone:** (800) 621-6032
To view our complete product line visit: ***www.woodfordmfg.com*** *or email:* ***sales@woodfordmfg.com***

S

PRODUCT SPECIFICATIONS

Stainless Steel 23-1/2" x 18-1/4" x 6-3/8" Single Bowl Undermount ADA Sink. Sink is manufactured from 18 gauge 304 Stainless Steel with a Lustrous Satin finish, Center drain placement, and Bottom only pads.

Installation Type:	Undermount
Material:	304 Stainless Steel
Finish:	Lustrous Satin
Gauge:	18
Sound Deadening:	Bottom only pads
Number of Bowls:	1
Sink Dimensions:	23-1/2" x 18-1/4" x 6-3/8"
Bowl 1 Dimensions:	21" x 15-13/16" x 6-3/8"
Drain Size:	3-1/2" (89mm)
Drain Location:	Center
Minimum Cabinet Size:	24"
Mounting Hardware:	Not Included

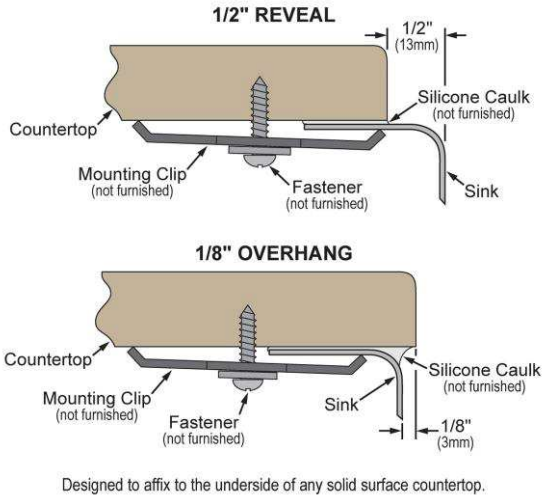
Quality Grade Plumbing Products.
Since 1933 we have become the industry standard for designing and producing quality grade plumbing products and fixtures. Our role as an industry leader remains unsurpassed.

Product Compliance: ADA & ICC A117.1
ASME A112.19.3/CSA B45.4

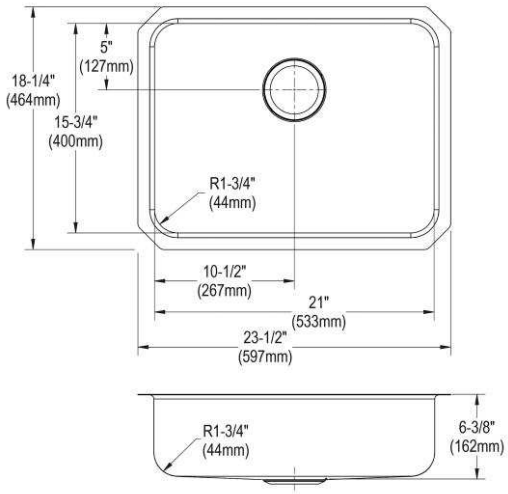
Complies with ADA & ICC A117.1 accessibility requirements when installed according to the requirements outlined in these standards.

Clean and Care Manual (PDF)
Installation Instructions (PDF) - 2000000857
Warranty (PDF)

Installation Profile:



Designed to affix to the underside of any solid surface countertop.



PART:_____QTY: _____

PROJECT:_____

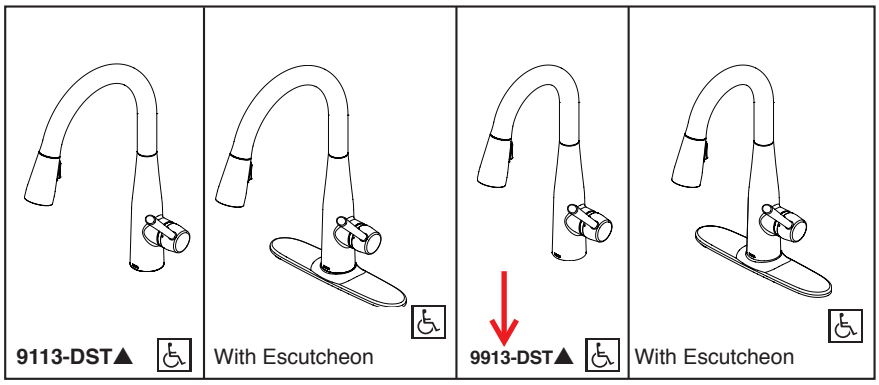
CONTACT:_____

DATE:_____

NOTES:_____

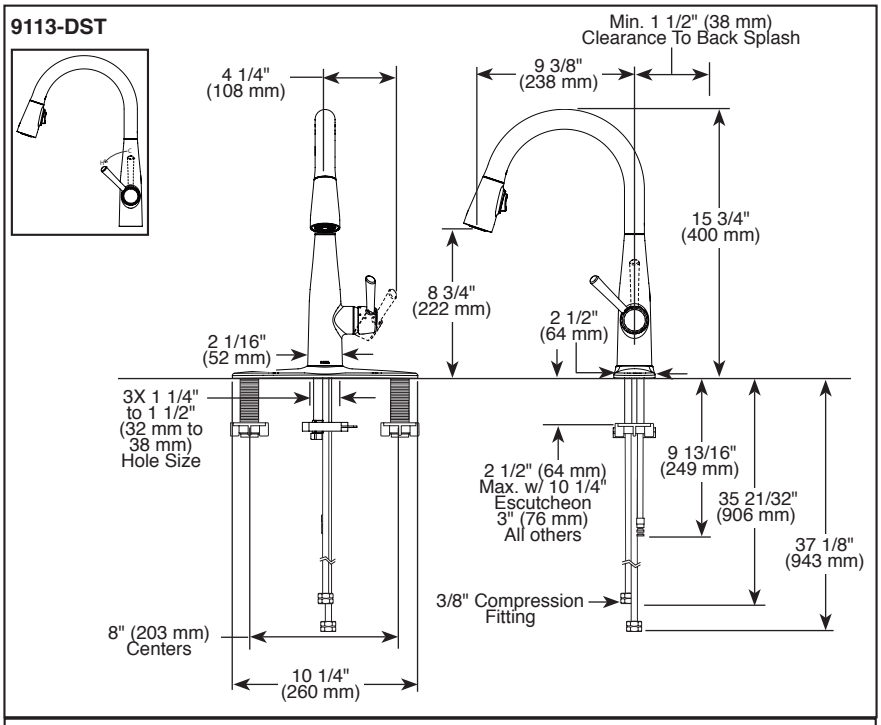
APPROVAL:_____

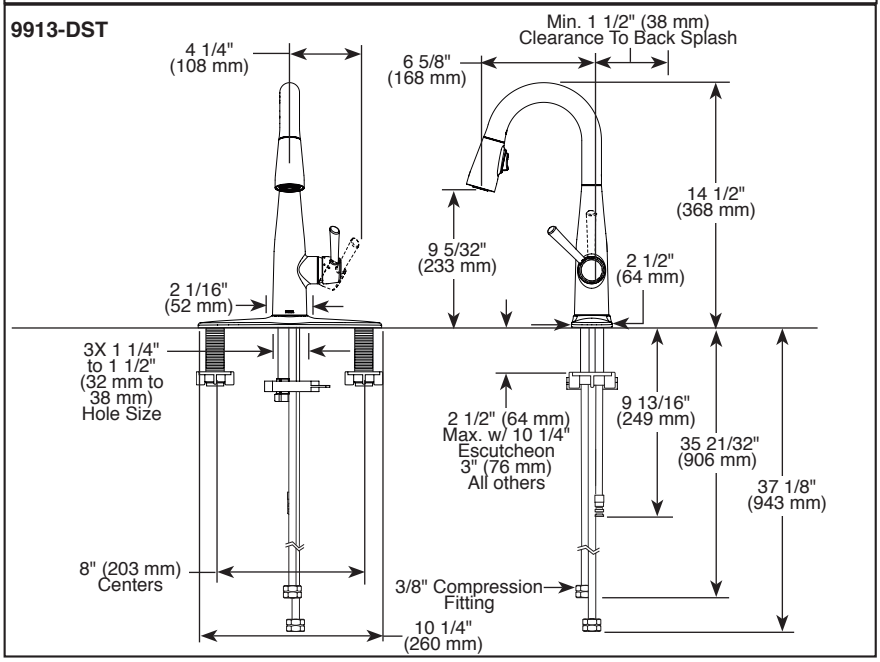
In keeping with our policy of continuing product improvement, Just Mfg reserves the right to change product specifications without notice. Please visit justmfg.com for the most current version of Just Mfg product specification sheets. This specification describes a product with design, quality, and functional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



Submitted Model No.:_____

Specific Features: _____





▲ Designate proper finish suffix

Delta reserves the right (1) to make changes in specifications and materials, and (2) to change or discontinue models, both without notice or obligation. Dimensions are for reference only. See current full-line price book or www.deltafaucet.com for finish options and product availability.

DSP-K-9113-DST Rev. B

see what Delta can do™

KITCHEN FAUCETS

■ Essa™ Collection
■ Single Handle Pull-Down

FEATURES:

- DIAMOND Seal® Technology
- MagnaTite® Magnetic Docking
- Touch-Clean® Sprayhead

STANDARD SPECIFICATIONS:

- Maximum 1.8 gpm @ 60 psi, 6.8 L/min @ 414 kPa
- One or three hole mount (Escutcheon included with kitchen models. For prep models, order separately)
- Diamond coated ceramic cartridge
- 3/8" O.D. straight, staggered PEX supply lines
- Spout rotates 360˚
- Red/Blue indicator markings
- Two-function wand; Aerated stream or spray
- Dual integral check valves in sprayer

WARRANTY

- Parts and Finish - Lifetime limited warranty; or for commercial purchasers, 10 years for multi-family residential (apartments and condominiums) and 5 years for all other commercial uses, in each case from the date of purchase.
- Electronic Parts and Batteries (if applicable) - 5 years from the date of purchase; or for commercial purchasers, 1 year from the date of purchase. No warranty is provided on batteries.

COMPLIES WITH:

- ASME A112.18.1 / CSA B125.1
- ASME A112.18.6
- Indicates compliance to ICC/ANSI A117.1
- Verified compliant with .25% weighted average Pb content regulations.

Delta Faucet Company
55 E. 111th Street, Indianapolis, IN 46280
350 South Edgeware Road, St. Thomas, ON N5P 4L1

insinkerator®

STANDARD SERIES

Badger® 5

Submittal Sheet

This model offers the following features and benefits:

- **Lift & Latch**® technology for easier sink connection
- 1/2 Horsepower Heavy Duty Motor (Quiet Dura-Drive® Induction Motor)
- *We Come To You*® 3-Year In-Home Limited Warranty
- Rugged Galvanized Steel Construction (For Disposer Durability)
- Space-Saving Compact Design
- Available with or without a factory installed power cord.

Sample Specification

Food Waste Disposer(s) shall be InSinkErator Badger® 5, continuous feed, with 1/2 HP. motor, stainless steel grinding elements with two stainless steel 360° swivel lugs. Exclusive self-service wrench.

Warranty

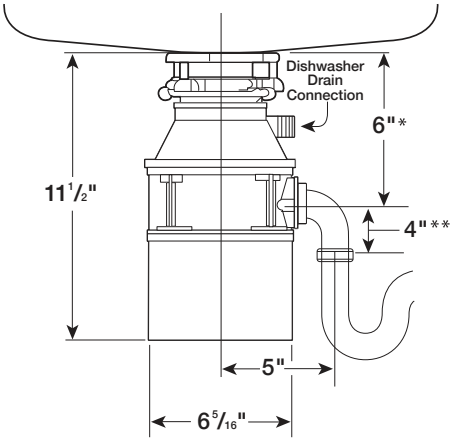
3-Year *We Come to You*® Limited In Home Warranty

* The complete InSinkErator warranty is included in the Care & Use Booklet packed with each unit.

Specifications

Type of Feed	Continuous
On/Off Control	Wall Switch
Motor	Single Phase
HP	1/2
Volts	120
HZ	60
RPM	1725
Amp. (Avg. Load)	6.3
Time Rating	Intermittent
Lubrication	Permanently Lubricated Upper & Lower Bearings
Shipping Weight (Approx.)	13 lbs. 10 oz. (without cord) 13 lbs. 14 oz. (with cord)
Overall Height	11-1/2"
Grind Chamber Capacity	26 oz.
Motor Protection	Manual Reset Overload
Average Water Usage	Approx. 1 Gallon per Person Per Day
Average Electrical Usage	3-4 KWh per Year
Drain Connection	1-1/2" Cushioned Slip Joint
Dishwasher Drain Connection	Yes
Factory Installed Power Cord	Available with or without

Dimensions



* Distance from bottom of sink to center line of disposer outlet. Add 1/2" when stainless steel sinks are used.

** Length of tailpipe from center line of disposer outlet to end of tailpipe. NOTE: Plumb waste line to prevent standing water in disposer motor housing.

Job Specifications

Food waste is roughly 80% water. By using your disposal regularly, you can help divert food waste from landfills and reduce greenhouse gas emissions. Make sustainability a family affair by using your disposal. After all, the smallest changes can make the biggest impact.

The ONLY manufacturer with disposers INVENTED, DESIGNED & ASSEMBLED in the USA

1-800-558-5700
www.insinkerator.com

H1013-24A-83-10

McGuire Manufacturing Co., Inc.
60 Grandview Court
Cheshire, Connecticut 06410
(203) 699-1801 Fax (203) 699-1813
customerservice@mcguiremfg.com mcguiremfg.com

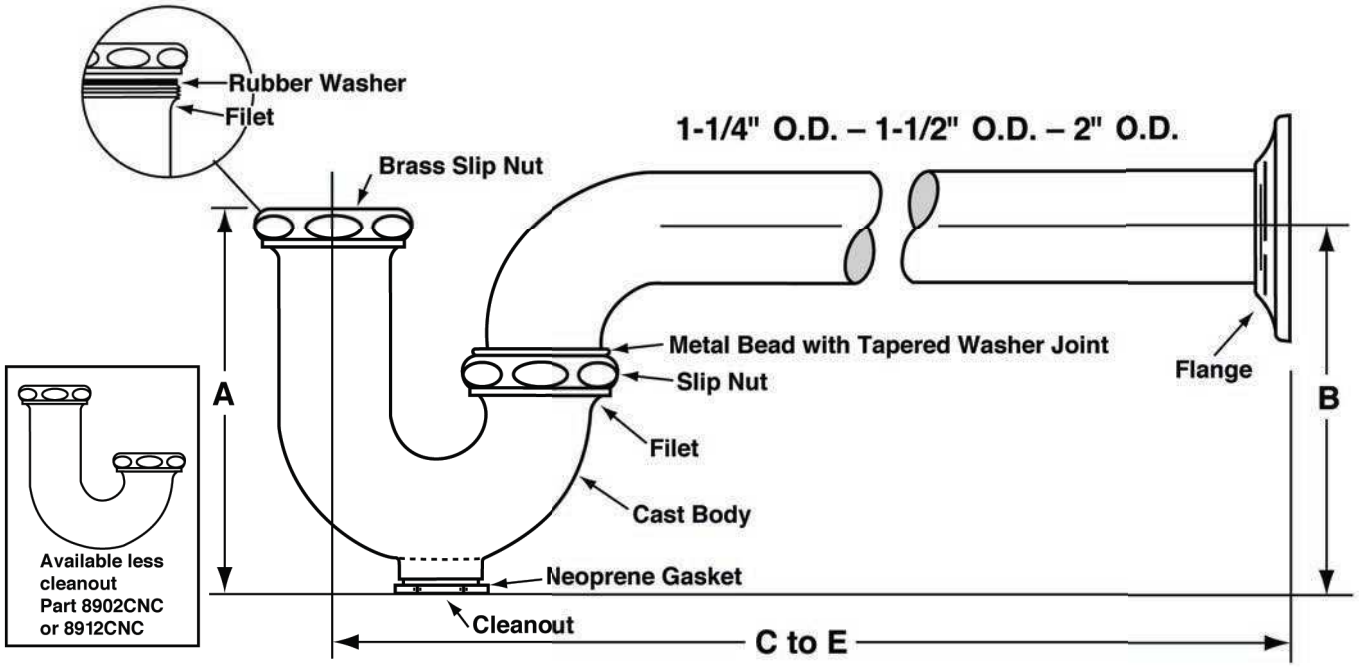
PRODUCT SPECIFICATION

Part No.

8872C, 8902C, 8902CNC, 8912C, 8912CNC, 8903C, 8904C

Cast Body P-Trap With or Without Cleanout

Job Name: **Submittal Number:**



PROFESSIONAL LINE

ROUGHING MEASUREMENTS					
NO.	TRAP DIMENSIONS		A	B	C to E
	INLET	OUTLET			
8872C	1-1/4"	1-1/4"	4-1/2"	4-1/4"	11-1/2"
8902C	1-1/4"	1-1/2"	5"	5-1/2"	11-1/2"
8902CNC	1-1/4"	1-1/2"	4-5/8"	4-3/4"	11-1/2"
8912C	1-1/2"	1-1/2"	5"	5-1/2"	11-1/2"
8912CNC	1-1/2"	1-1/2"	4-5/8"	4-1/8"	11-1/2"
8903C	1-1/2"	2"	5"	6"	13-3/4"
8904C	2"	2"	5"	6"	13-3/4"

FED SPEC W.W.P. 541
CAST BRASS P TRAP
MINIMUM SEAL 2"

See options and accessories section for details on product variations.

ASME A112.18.2/CSA B125-2

Specifications:

P-Trap shall be chrome plated cast brass body (with, without) cleanout, with 17 gauge seamless tubular wall bend, cast brass slip nuts. Reducing washers shall be used with reducing cast brass nut. With (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange.
P-Trap shall be McGuire "Classic" Professional Line
Trap shall be certified by CSA or other recognized testing authority. Trap shall bear manufacturer and testing marks.

WARNING:

This product can expose you to chemicals including lead, which is known to the State of California to cause cancer, and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

McGuire Manufacturing Co., Inc.
60 Grandview Court
P.O. Box 746 • Cheshire, CT 06410
203-699-1801 • Fax: 203-699-1813
www.mcguiremfg.com

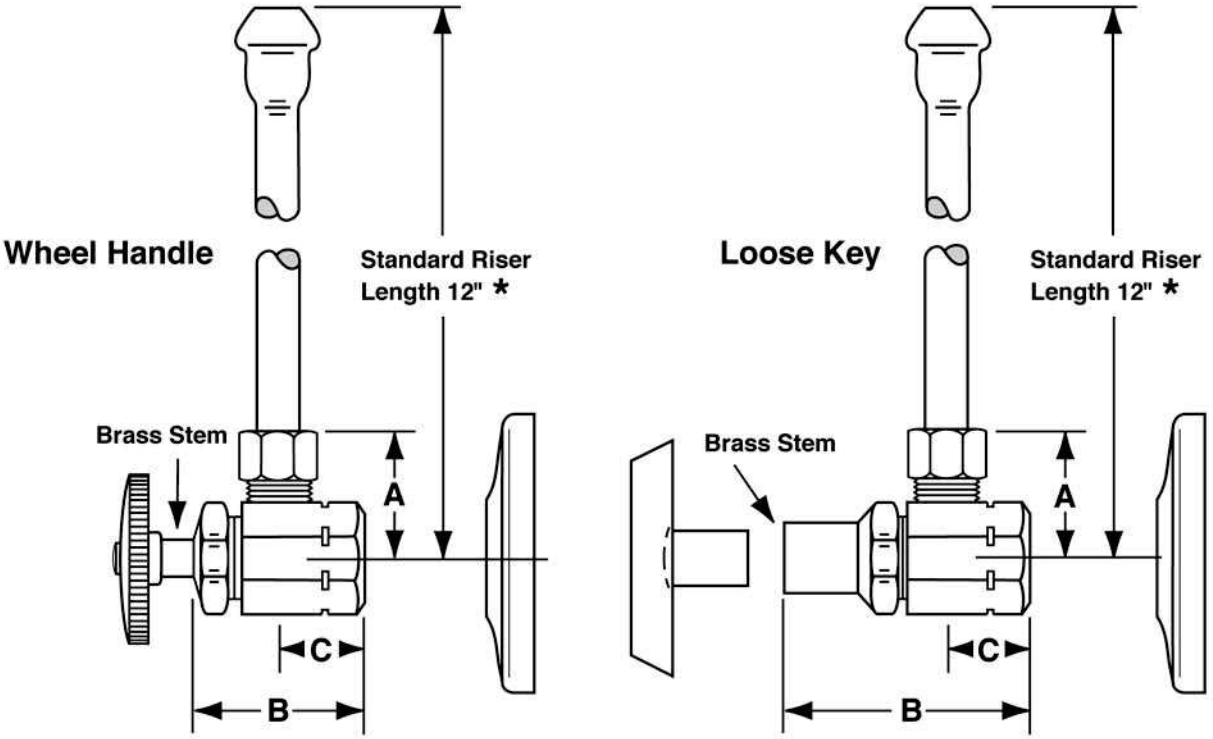
PRODUCT SPECIFICATION

Part No.

LF2165, LF2165LK, LF2167, LF2167LK

Lavatory Supply 1/2" I.P.S. x O.D.

Job Name: _____ **Submittal Number:** _____



NO.	DESCRIPTION	ROUGHING MEASUREMENTS		
		A	B	C
LF2165	1/2" I.P.S. x 3/8" O.D.	1-3/16"	1-1/2"	3/4"
LF2165LK	1/2" I.P.S. x 3/8" O.D.	1-3/16"	2-1/4"	3/4"
LF2167	1/2" I.P.S. x 1/2" O.D.	1-3/16"	1-1/2"	3/4"
LF2167LK	1/2" I.P.S. x 1/2" O.D.	1-3/16"	2-1/4"	3/4"

LOW-LEAD UPC

LK designates Loose Key

* See options and accessories section for details on product variations.

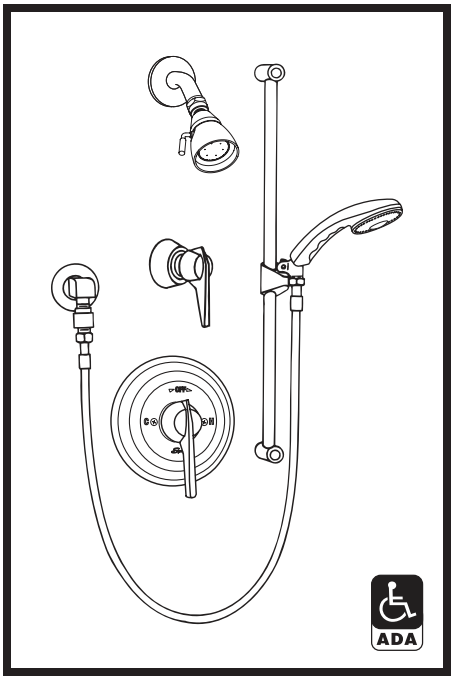
Specifications:

Supply kit shall include low lead chrome plated brass supply stop valves with full turn brass stem, no plastic, (12, 15, 20) inch chrome plated risers and (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange. Inlet shall be (3/8, 1/2) inch (IPS, compression). Outlet shall be (3/8, 1/2) inch compression. Supply kit shall be McGuire _____. Supply kit shall be low lead certified by recognized authority and bear manufacturer and testing mark.

SH

C-96-500-B30-V
Temptrol® Shower System with Hand Spray

Temptrol Commercial Series Pressure-Balancing mixing valve with lever handle and adjustable stop screw to limit handle turn. Levertrol diverter with integral volume control. Cast brass adjustable spray shower head with arm and flange. Wall/hand shower with flexible metal hose, in-line vacuum breaker, wall connection and flange. 30" slide bar for hand shower mounting.



Modifications:

Suffix X: Integral service stops

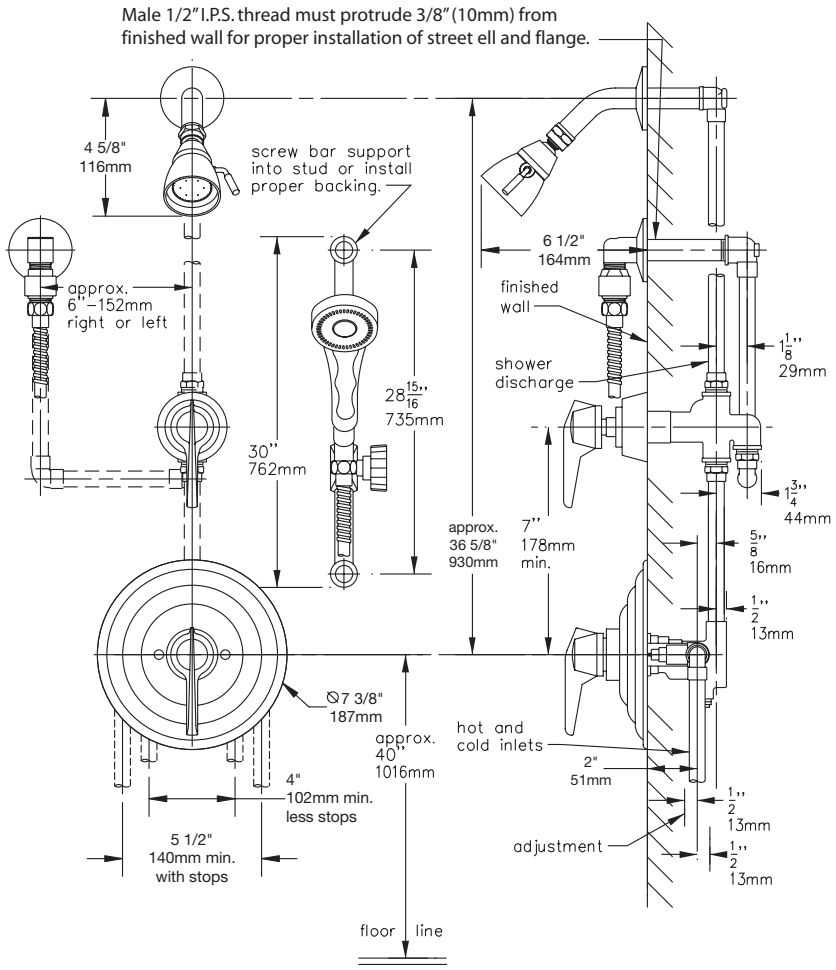
Suffix IPS: 1/2" female IPS connections

Suffix REV: Reverse coring, hot on right, cold on left, for back to back installations

Suffix QD: Quick-disconnect for hand spray units

Suffix B48: 48" adjusting bar in place of standard 30" bar

1.5 GPM



SYMMONS PRODUCTS MEET ANSI A112.18.1M, EPA '92 AND ALL KNOWN FLOW RATE REQUIREMENTS.
Shower Heads and Hand Showers 2.5 GPM (9.5 L/min)

Job/Location

. . . . . .

. . . . . .

Engineer

. . . . . .

. . . . . .

Contractor

. . . . . .

. . . . . .

ADA This drawing to be used for rough-in installation only. All floor to center dimensions optional. Concealed piping and fittings not furnished by manufacturer. Dimensions are for ADA compliance (Americans with Disabilities Act) consult ADAAG or your state regulations for proper product choice and mounting locations. For complete installation, adjustment and service information see installation instructions.

Symmons Industries, Inc. ▪ 31 Brooks Drive ▪ Braintree, MA 02184
(800) 796-6667, (781) 848-2250 ▪ Fax (800) 961-9621, (781) 843-3849
Website: www.symmons.com ▪ Email: customerservice@symmons.com

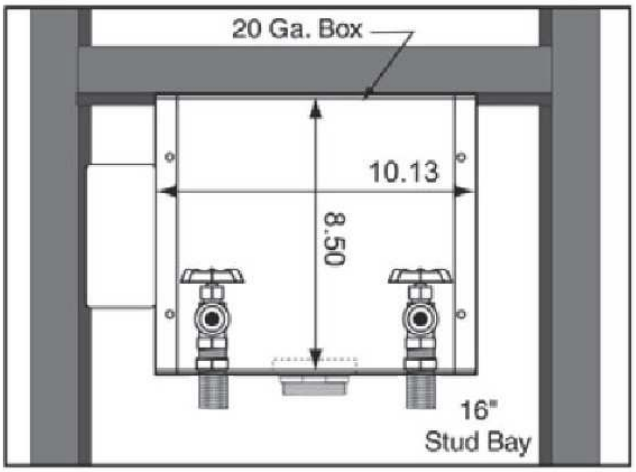
SYMMONS® the smart choice™

WB-1

SPECIFICATION SUBMITTAL SHEET

GUY GRAY™
IPS CORPORATION

CENTER DRAIN GALVANIZED WMOB, Domestic Valves With GFCI & Dryer Receptacles on Right



Specification:

Furnish and install center drain galvanized washing machine outlet box with GFCI and dryer receptacles. Unit shall be Guy Gray product code as manufactured by IPS Corporation.

Box Material:

20 gauge Box and 20 gauge faceplate
G90 Hot Dipped Galvanized Steel (unpainted)

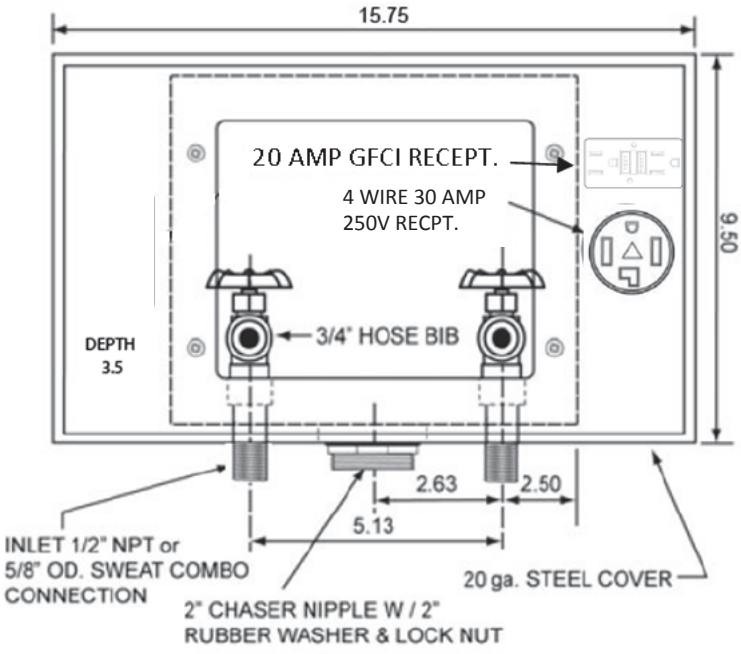
Valve & Drain Options:

Domestic 1/2" MIP/Sweat Connection Valve.
2" Threaded Drain or 1 ½" Male Threaded Drain. Valves comply with ASME A112.18.1

Ground Fault Circuit Interrupter (GFCI Receptacles:

UL/CSA Listed
Rated: 20A outlet, 20A Feed-Through, 125v

4 Wire Dryer: 30A/125/250V



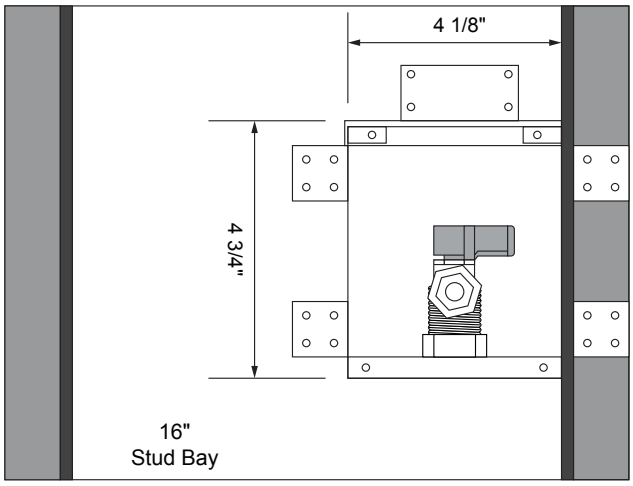
Product Code #	Product Description	Model Number	Units/ Case
82635	1/2" MIP/Sweat Conx. Valves, 2" Threaded Drain Fitting, w/GFCI and 4 Wire Dryer Recpt.	NWBED2004GF	6

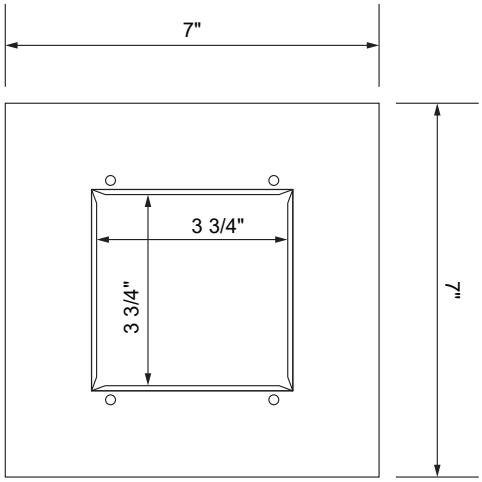
IPS® CORPORATION
500 Distribution Parkway, Collierville, TN 38017 ▪ 800-888-8312 ▪ Fax: 901-853-5008 ▪ www.ipscorp.com

WB-2

GUY GRAY
IPS CORPORATION

White Powder Coated Ice Maker Outlet Box With Lead Free Valves





Specifications:
Furnish and install recessed, white powder-coated ice maker outlet box with a brass quarter turn valve. Unit shall be Guy Gray™ product code checked below as manufactured by IPS Corporation.

Box Material:
The box and faceplate are 20 gauge white powder-coated cold rolled steel.

Valve Options:
The brass quarter turn valves shall comply with NSF61, NSF/ANSI 372, and ASME A112.18.1/CSA B125.1 and shall feature white handle and check-mark logo for easy Lead-Free identification.

	Item #	Product Description	Model #	Units/Case
→	88133	Brass Qtr Turn Valve, Installed, 1/2" Sweat Conx.	MIB1AB	5
	88532	Brass Qtr Turn Valve, Installed, 1/2" CPVC Conx.	MIB2AB	5
	88178	Brass Qtr Turn Valve, Installed, 1/2" PEX Conx.	MIB3AB	5
	88534	Brass Qtr Turn Valve, Installed, 1/2" Sweat Conx. Contractor Pack	MIB4AB	10
	88535	Brass Qtr Turn Valve, Installed, 1/2" Wirsbo Conx.	MIB5AB	5

IPS CORPORATION
500 Distribution Parkway, Collierville, TN 38017 ▪ Phone: 800-888-8312 ▪ Fax: 901-853-5008 ▪ www.ipscorp.com

WC

Highline®

Two-piece elongated toilet, 1.6 gpf

K-3979

Features

- Two-piece design
- Elongated bowl offers added room and comfort
- Comfort Height® feature offers chair-height seating that makes sitting down and standing up easier for most adults
- Left-hand Polished Chrome trip lever
- Combination consists of the K-4468 tank and the K-4199 bowl
- 1.6 gpf (6.0 lpf)
- 2-1/8" (54 mm) fully glazed trapway
- Class Five® canister optimizes the flow out of the tank, harnessing gravity and the natural powerful reducing cascade of water to increase the power and effectiveness of the flush

Installation

- Seat sold separately
- Standard 12" (305 mm) rough-in
- Three-bolt quick-connect installation

Recommended Products/Accessories

K-5588 Purefresh® Deodorizing elongated toilet seat
K-4108 PureWash® E750 Elongated bidet toilet seat with remote control
K-5420 Low-Profile Bolt Caps
K-9379 Trip Lever
1023457 Wax Ring/Hardware Kit
1265114 Connector Hose
K-23726 Drain treatment

Included Components

K-4468 Toilet tank, 1.6 gpf
K-4199 Elongated toilet bowl

ADA | **CSA B651** | **OBC**

Codes/Standards

ASME A112.19.2/CSA B45.1
DOE - Energy Policy Act 1992
ADA
ICC/ANSI A117.1
CSA B651
OBC
IAPMO Certification

KOHLER® Toilets and Seats Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

Color tiles intended for reference only.

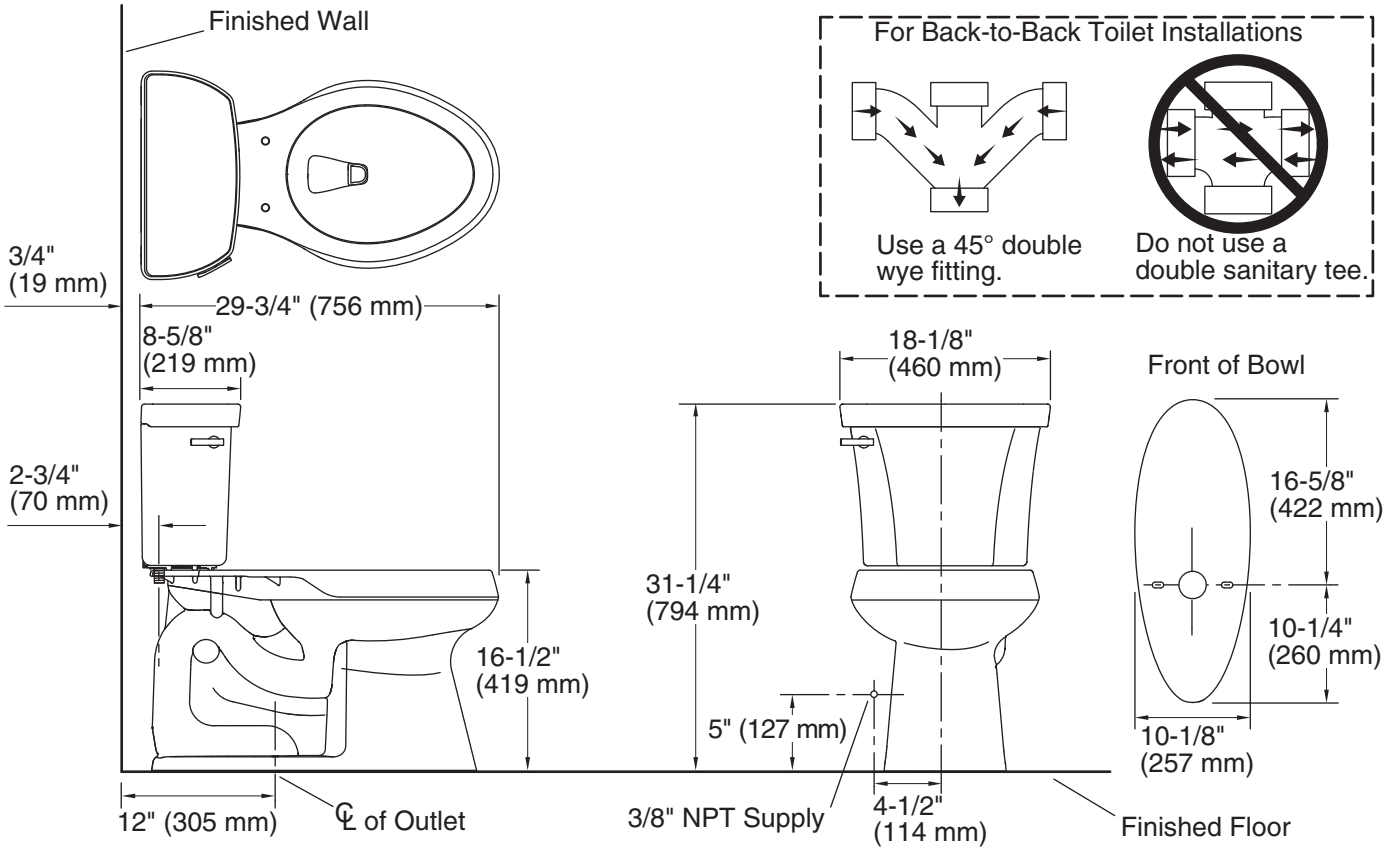
Color	Code	Description
	0	White
	96	Biscuit
	7	Black Black™

KOHLER®

Highline®

Two-piece elongated toilet, 1.6 gpf

K-3979



Technical Information

All product dimensions are nominal.

Toilet type:	Floor-mount
Waste Outlet:	Floor
Bowl shape:	Elongated
Flush type:	Class Five
Trap passageway:	2-1/8" (54 mm)
Water surface size:	11-3/8" x 8" (289 mm x 203 mm)
Rim to water surface:	5-3/8" (137 mm)
Rough-in:	12" (305 mm)
Seat-mounting holes:	5-1/2" (140 mm)

Notes

Install this product according to the installation instructions.

For back-to-back toilet installations: Use only a 45° double wye fitting.

ADA, OBC, CSA B651 compliant when installed to the specific requirements of these regulations.

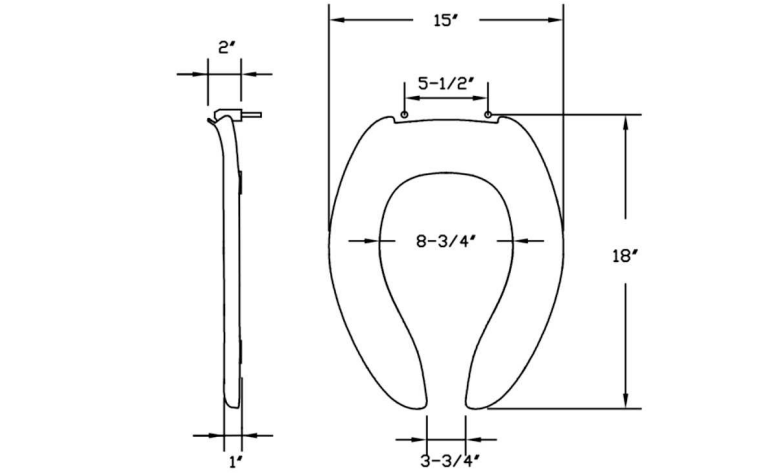
Plumbing codes may require elongated toilets and elongated, open-front seats in public bathrooms.

Accessibility standards may require controls to be located on the open side of the toilet.

CENTOCO

500STSCCFE-001

COMMERCIAL HEAVY DUTY



Dimensions shown are nominal and may vary within a range of tolerance. Product specifications are subject to change without notice.

Product Specifications

Shape	Elongated
Seat Material	Polypropylene
Seat Form	Open front
Commercial Hinge	Yes
Bolt Material	Stainless steel
Hardware Material	FAST-N-LOCK
Check Hinge	Yes
Cover	No
Custom Gasket	No
Color	White
Warranty	1 year limited warranty
Available Colors	White,

Features

FAST-N-LOCK

Centoco's new patented FAST-N-LOCK Mounting System takes the guessing out when tightening the hardware. The specially designed fasteners "click" when the appropriate torque is reached. This feature largely reduces the chance of getting call backs from customers for seats that have become loose over time.

Commercial Hinge

Includes commercial grade hinges. One piece solid metal hinge pin and bolt over molded with plastic.

McGuire Manufacturing Co., Inc.
60 Grandview Court
P.O. Box 746 • Cheshire, CT 06410
203-699-1801 • Fax: 203-699-1813
www.mcguiremfg.com

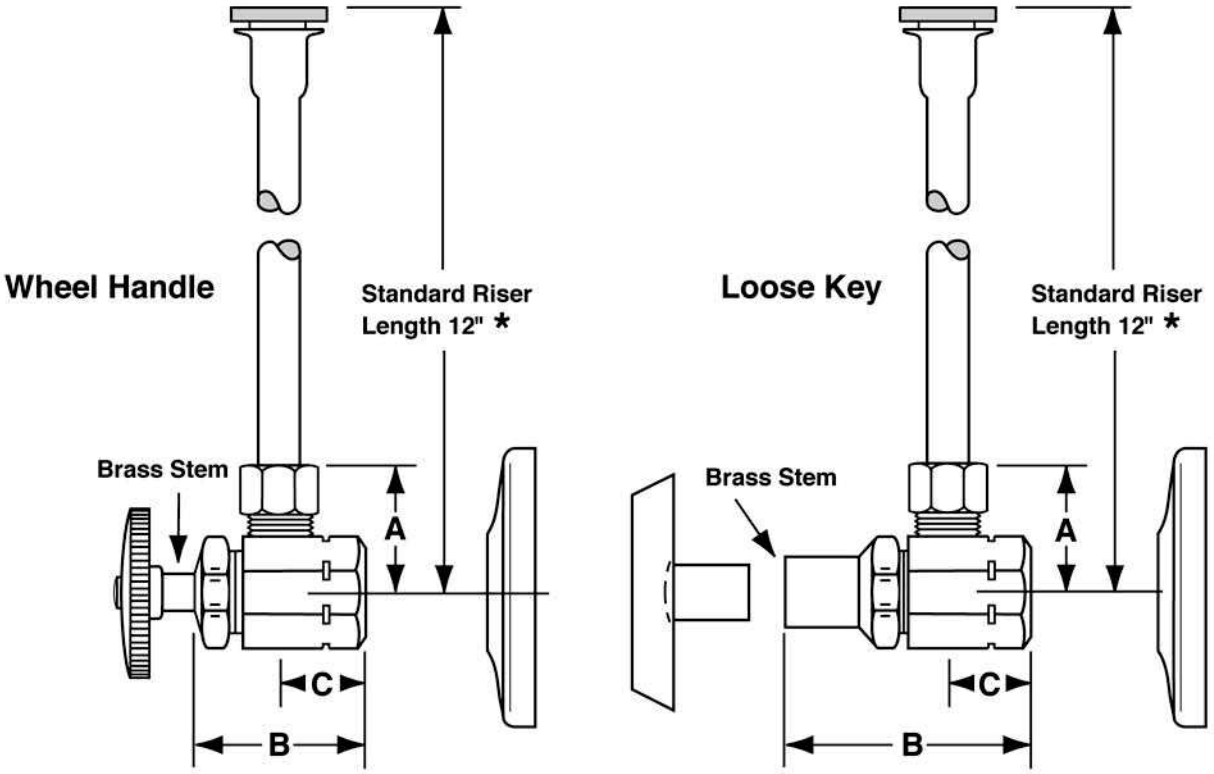
PRODUCT SPECIFICATION

Part No.

LF2166, LF2166LK, LF2169, LF2169LK

Closet Supply 1/2" I.P.S. x O.D.

Job Name: | **Submittal Number:**



NO.	DESCRIPTION	ROUGHING MEASUREMENTS		
		A	B	C
LF2166	1/2" I.P.S. x 3/8" O.D.	1"	1-1/2"	3/4"
LF2166LK	1/2" I.P.S. x 3/8" O.D.	1"	2-1/4"	3/4"
LF2169	1/2" I.P.S. x 1/2" O.D.	1"	1-1/2"	3/4"
LF2169LK	1/2" I.P.S. x 1/2" O.D.	1"	2-1/4"	3/4"

LOW-LEAD UPC

LK designates Loose Key

* See options and accessories section for details on product variations.

Specifications:

Supply kit shall include low lead chrome plated brass supply stop valves with full turn brass stem, no plastic, (12, 15, 20) inch chrome plated risers and (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange. Inlet shall be (3/8, 1/2) inch (IPS, sweat, compression). Outlet shall be (3/8, 1/2) inch (IPS, compression). Supply kit shall be McGuire _____. Supply kit shall be low lead certified by recognized authority and bear manufacturer and testing mark.

WH-1

COMMERCIAL-GRADE

RESIDENTIAL ELECTRIC WATER HEATERS

PROLINE®

ENHANCED HEATING ELEMENTS

- Dual 4500 watt elements for faster recovery and reliable operation*
- Incoly stainless steel lower element lasts longer than a standard copper element

SELF-CLEANING DIP TUBE

- Helps reduce lime and sediment buildup, maximizes hot water output. Made from long-lasting PEX cross-linked polymer (self-cleaning design is not used on lowboy models).

HIGHER EFFICIENCY

- Eco-friendly non-CFC foam insulation, heat traps and other features combine to yield a higher Uniform Energy Factor that maximizes savings on operating costs

COREGARD™ ANODE ROD

- Our anode rods have a stainless steel core that extends the life of the anode rod allowing superior tank protection far longer than standard anode rods

BLUE DIAMOND® GLASS COATING

- Provides superior corrosion resistance compared to industry-standard glass lining

ENHANCED-FLOW BRASS DRAIN VALVE

- Our residential water heaters have a solid brass, tamper resistant, enhanced-flow, ball type, drain valve
- Uses a standard female hose fitting that allows for fast and easy draining during maintenance
- Designed for easy operation, this valve includes an integral screwdriver slot that features a ¼ turn (open/close) radius, which not only permits full straight-through water flow but also a quick and positive shut off.

CODE COMPLIANCE

- Meets UBC and ICC National Codes and listed with CEC
- Complies with the Federal Energy Conservation Standards effective April 16, 2015, in accordance with the Energy Policy and Conservation Act (EPCA), as amended.

APPROVED FOR MANUFACTURED HOUSING

- All residential electric water heaters are compliant with HUD Standards for mobile homes/manufactured housing

CERTIFIED TO UL 174 FOR HOUSEHOLD ELECTRIC WATER HEATERS

CSA CERTIFIED AND ASME RATED T&P RELIEF VALVE

DESIGN-LISTED BY UNDERWRITERS LABORATORIES

- Certified at 300 psi test pressure and 150 psi working pressure
- Listed according to UL 174 standards governing storage tank-type electric water heaters

6-YEAR LIMITED TANK AND PARTS WARRANTY

- For complete information, consult written warranty or go to statewaterheaters.com

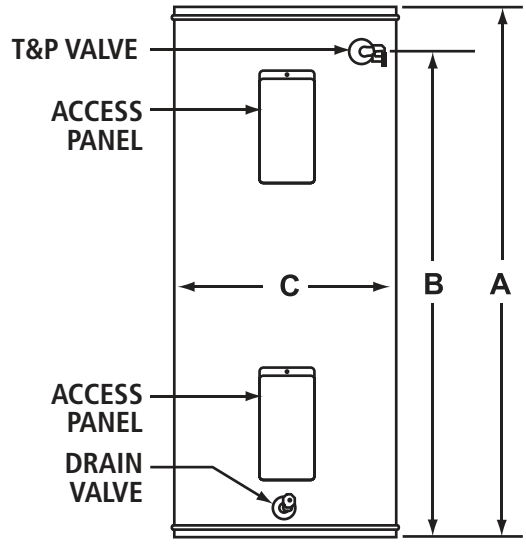
Low Lead Content

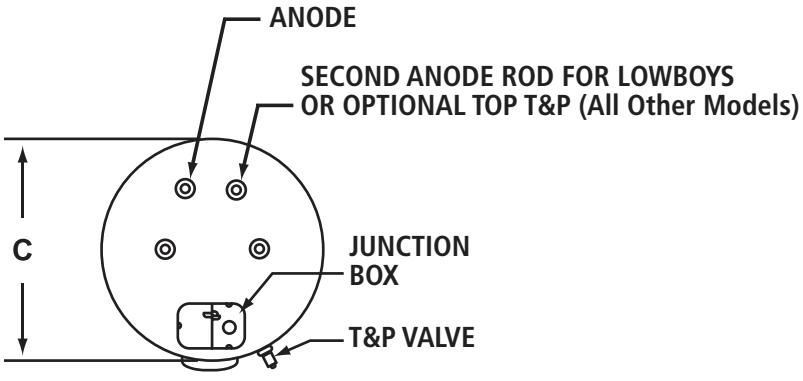
SOLID. STATE.

Model Number	Nominal Capacity	Rated Storage Volume	First Hour Rating (Gallons)	UEF	Recovery @ 90°F Rise Gallon Per Hour	Element Wattage 240V			Dimensions in Inches			Approx. Shipping Weight (lbs)
						Standard	Minimum	Maximum	A	B	C	
Tall Models												
†EN6 30 DORT	30	27	48	0.89	21	4500	1000	6000	46-1/2	39-1/2	19	95
†EN6 40 DORT	40	36	53	0.92	21	4500	3500	6000	61-1/4	53-1/4	18	118
†EN6 50 DORT	50	46	62	0.92	21	4500	3000	6000	59	51-1/4	20-1/2	125
†EN6 55 DORT	55	55	72	0.93	21	4500	2500	6000	56-1/2	48-1/2	24	145
Short Models												
EN6 30 DOBS*	30	27	50	0.90	21	4500	1000	6000	39	30-1/2	20	95
†EN6 30 DORS	30	27	47	0.89	21	4500	1000	6000	39-3/4	30-1/2	22	94
†EN6 40 DORS	40	37	55	0.92	21	4500	@ 4500	6000	49-3/4	40-3/4	20-1/2	109
†EN6 40 DORSW	40	37	41	0.88	18	-	1000	4000	49-3/4	40-3/4	20-1/2	109
†EN6 50 DORS	50	46	57	0.92	21	4500	2500	6000	49-1/4	40-3/8	23	161
Lowboy Top Connect Models												
†EN6 30 DOLBS*	28	26	43	0.89	21	4500	1000	6000	30	21-3/4	20	90
†EN6 30 DOLS	28	26	44	0.90	21	4500	1000	6000	31 1/4	21-3/4	24	115
†EN6 36 DOLS	36	33	51	0.92	21	4500	@ 4500	6000	32	24	24	118
†EN6 40 DOLS	38	35	50	0.89	21	4500	1000	6000	33 1/2	24	26	118
†EN6 40 DOLBS*	38	35	51	0.92	21	4500	@ 4500	6000	32	24	23	118
†EN6 40 DOLBSW*	38	35	38	0.90	18	-	1000	4000	32	24	23	118
†EN6 50 DOLBS*	48	44	60	0.93	21	4500	@ 4000	6000	34	25	26-1/2	172
†EN6 50 DOLBSW*	48	44	40	0.91	16	-	1000	3500	34	25	26-1/2	172
†EN6 50 DOLS	51	48	51	0.92	21	4500	4000	6000	36	25	26-1/2	172

Male 3/4"water connections on 8" center.
*Models ship with supplied insulation blanket.
†For 10-year tank and 10-year parts limited warranty, change "N6" to "SX" in select models and "R" to "N" in tall and short model number (example: ESX 40 DONT).
Models requiring a lower wattage than what is listed in the minimum wattage column and showing the @ symbol, will change to a "W" suffix model number.
"W" suffix models are available down to 1kW. (example: EN6-40-DORS using 4,000 watt elements or less will become "EN6-40-DORSW").
Top T&P is not available on the 10 year lowboy models and the EN6 40 DOLS.
Dimensions and specifications subject to change without notice in accordance with our policy of continuous product improvement.
Minimum wattage for EN6-50-DORT is 3000 watts.

208V, 3PH





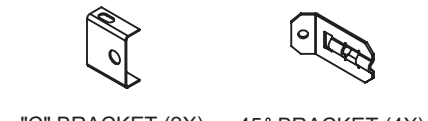
Product Submittal	
Name	
Date	
Architect/Owner	
Contractor	
Tag	
Notes	

HoldRite QUICK STAND™ #50-SWHP-W Wall Mounted Equipment Platform Product Specification Drawing

The #50-SWHP-W Wall Mounted Equipment Platform is engineered to support water heaters up to 50 U.S. gallons (or other equipment up to 600 pounds total weight) mounted to a wall. This item also serves as a drain pan. See Installation Instructions for detail. See Installation Instructions for detail.

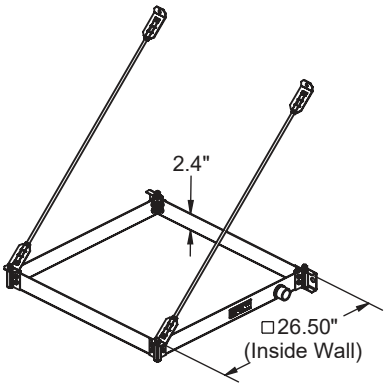
Product Information:

- Material:
  Pan: 12 gage CRS, galvanized
  Corner Brackets (4): 14 gage CRS, galvanized
  C-Brackets (2): 16 gage CRS, galvanized
  45° Brackets (4): 12 gage, CRS, galvanized
  Threaded Rod (2): Low carbon steel, zinc plated, 3/8" x 37.10" long
- Wide platform allows water heaters up to 26-1/2" diameter
- Watertight corners and drain fittings eliminate need for additional drain pan
- Static load rating 600 pounds with 2X safety factor (depending on structural anchorage)
- Professional Engineer reviewed documentation available
- Includes PVC drain body 1" MIPT x 1" FS
- Galvanized steel construction
- Suspends with user supplied 3/8" hardware to mount to wall, 4 places
- Installation instructions for mounting to concrete or framed wall structure available

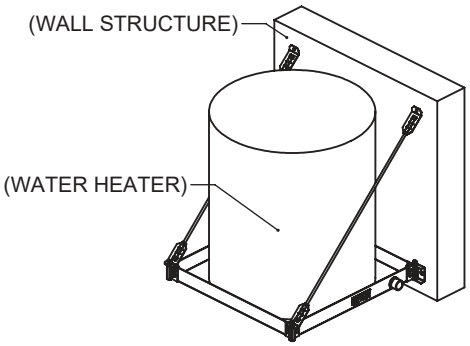


"C" BRACKET (2X) 45° BRACKET (4X)

DRAIN BODY ASSEMBLY



PAN ASSEMBLY



FULLY ASSEMBLED

Engineering Specification

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

LEAD FREE*

Series PLT

Potable Water Expansion Tanks

Series PLT Potable Water Expansion Tanks are designed to absorb the increased volume of water created by thermal expansion and to maintain balanced pressure throughout the potable water supply system.

Heated water expands, and in a domestic hot water system, the system may be closed when the potable water system is isolated from the public water supply by a one-way valve such as pressure reducing valve, backflow preventer or check valve. Provisions must be made for this expansion.

Series PLT expansion tanks absorb the increased volume of water created when the hot water storage tank is heated and keeps the system pressure below the relief setting of the T&P relief valve.

It is a pre-pressurized steel tank with an expansion membrane that prevents contact of the water with the air in the tank. This prevents loss of air to the water and insures long and trouble-free life for the system. These tanks may be used with all types of Direct Fired Hot Water Heaters (gas, oil or electric) and hot water storage tanks.

Features

- Rugged flexible butyl diaphragm
- Field adjustable pre-charge
- In-line and free standing models
- Can be used with most standard hot water heaters and storage tanks

Models

PLT-5-M1	¾" male connection, tank volume 2.1 gal.
PLT-12-M1	¾" male connection, tank volume 4.5 gal.
PLT-20-M1	¾" male connection, tank volume 8.5 gal.
PLT-35-M1	1" female connection, tank volume 14.00 gal.

Specifications

The potable water expansion tank shall be of drawn steel construction. It shall have a Butyl diaphragm separating the air chamber from the water containing chamber. Inlet connector shall be Stainless Steel. Materials of manufacture for the diaphragm shall be FDA approved.

The potable water expansion tank shall be a Watts Model PLT.

Standards

Models PLT-5, PLT-12 and PLT-20 are Listed by IAPMO.
Certified to ANSI/NSF 61
Model PLT-35
Certified to ANSI/NSF 61

(73˚F/23˚C)

Note: The potable water expansion tank shall be installed in the cold water service pipe line on the supply side of the water heater (or water storage tank). A pressure relief valve sized and installed in accordance with local codes must be incorporated in the system.
In those systems requiring a combined temperature and pressure safety relief valve, the temperature and pressure relief valve should be sized and installed in accordance with local codes. Adequate drainage provisions should be provided where water flow will cause damage.

See chart on back

NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

NOTICE

Inquire with governing authorities for local installation requirements

***The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.**

Selection

This Quick Reference Selection Guide may be used as an alternative to using a formula to determine the correct expansion tank for the system. This table is based upon a relief valve setting of 150psi (10.3 bar), and a maximum of 50°F temperature rise.

To select the correct model PLT series tank, simply go the supply pressure equal to the system supply pressure (for pressures between those shown use next highest supply pressure shown), read across the chart to the correct tank as indicated by the water heater capacity (for capacities between those shown, use next highest capacity).

To accommodate the thermal expansion required for higher temperature and/or higher pressure systems, multiple tanks may be used. Please contact the factory for sizing information.

Materials

Diaphragm: Butyl rubber

Inlet Connection: Stainless Steel

Technical Information

DESCRIPTION	PLT-5	PLT-12	PLT-20	PLT-35
Max. Pressure - PSI	150	150	150	150
Max. Temp. - °F	200	200	200	200
Tank Volume - Gal.	2.1	4.5	8.5	14.00
Air Pre-charge - PSI	20	20	20	20
Connections Size - Inches	¾ Male	¾ Male	¾ Male	1 Female
Diameter - Inches	8	10.5	12.5	16.0
Length - Inches	11	13.5	19.2	21.7
Weight - Lbs.	5.5	10	15	32

Acceptance Volume

AIR SIDE PRE-PRESSURE (PSI)	WATER SIDE VOLUME AT 150PSI (GALLONS) PLT-5	PLT-12	PLT-20	PLT-35
20	1.48	3.42	7.102	10.69
40	1.26	2.88	5.882	9.17
60	1.0	2.49	4.705	7.59
80	.8	1.85	4.009	6.07

SUPPLY PRESSURE (PSIG)	WATER HEATER (GALLONS) 20	30	40	50	80	100	120
40							
50							
55							
60							
70							
80							
90							
100							
110							
120							

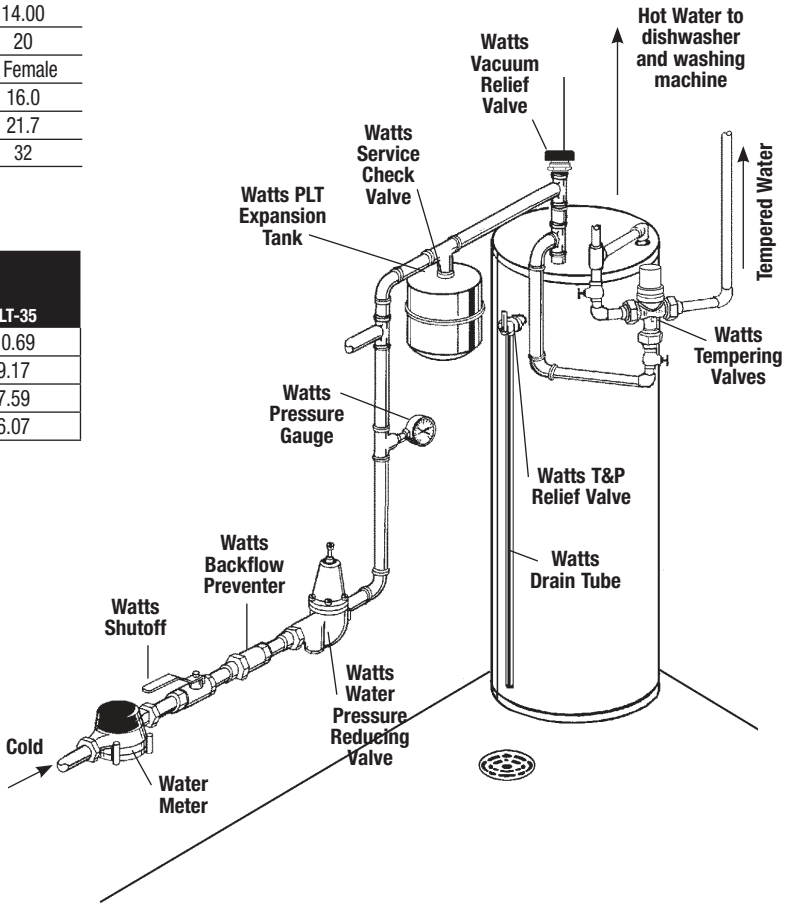
PLT-5 ←

PLT-12

PLT-20

PLT-35

Multiple tanks required - consult factory



WATTS®

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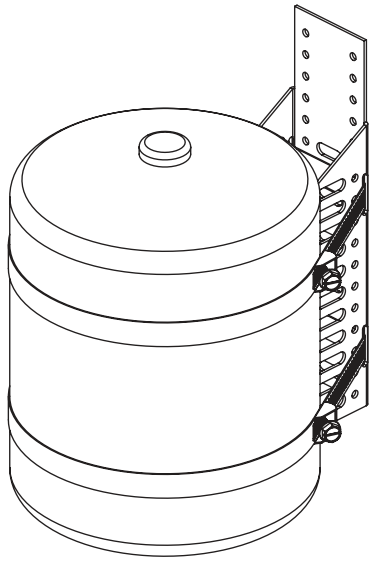
Latin America: T: (52) 55-4122-0138 • Watts.com

Date/Rev: 11-29-22 / Rev B

Product Submittal	
Name	
Date	
Architect/Owner	
Contractor	
Tag	
Notes	

HoldRite Quick Strap #QS-U & #QS-U-C
Specification Sheet/Drawing

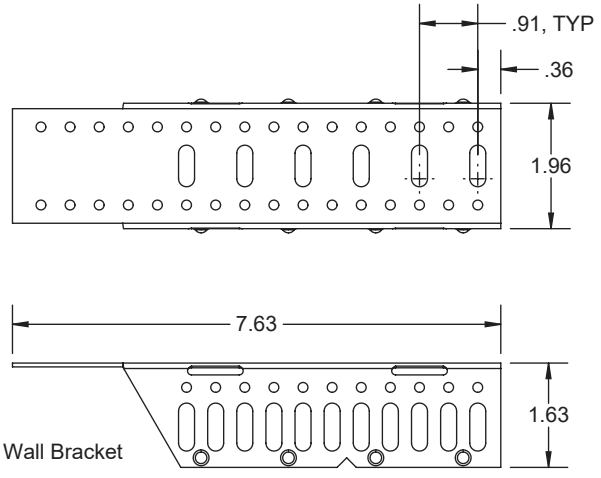
The QUICK STRAP® #QS-U & #QS-U-C is a thermal expansion tank mounting bracket. Secures to wall and takes weight load off pipes. Galvanized and stainless steel construction. Available for 2-5 gallon units. The system includes: Wall Bracket, Bands (2X) and #8 x 1.50" Long Sheet Metal Screws (2X).



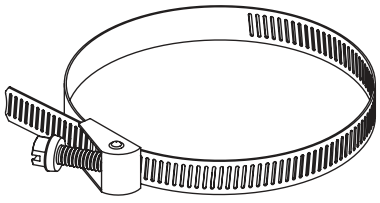
Product Information:

- Material:
  Strap: 1/2" Wide, .025" Thick, 200/410 Stainless Steel
  Bracket: 16GA, Galvanized Steel
  Screws: Pan Head, #8 x 1-1/2" Long, Steel
- Load Rating: 70 LBS. (Choose appropriate wall anchors)

Model	Size	Packaging
QS-U	Up to 5 gallon / Up to 13" diameter	Boxed
QS-U-C	Up to 5 gallon / Up to 13" diameter	Bagged Contractor Pack



#8 x 1.50" Long Sheet Metal Screw (2X)

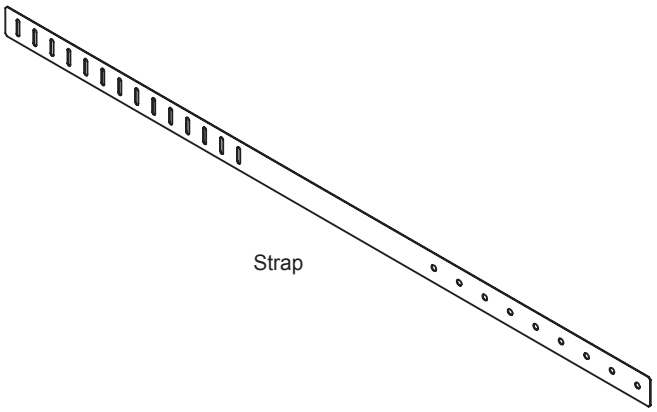


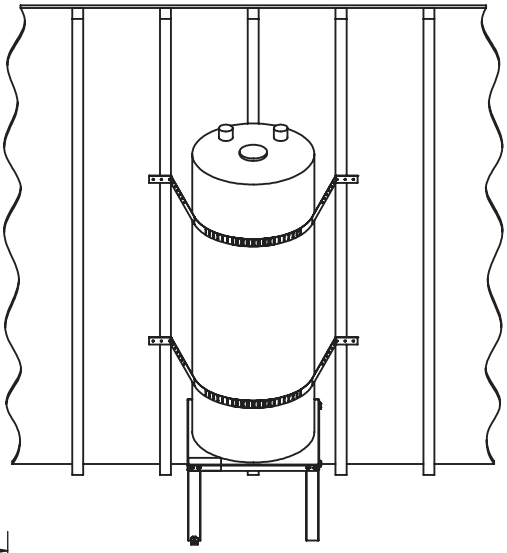
Band Length = 46.25", Diameter Range = 2.50" to 14.25" (2X)

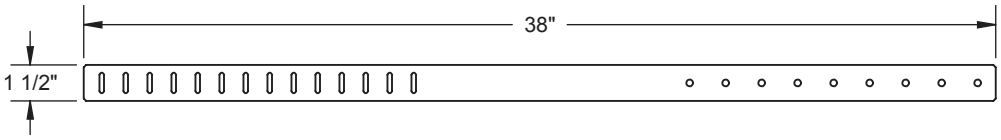
US Contact: 1.877.700.4242 • sales@holdrite.com • holdrite.com
Canadian Contact 1.888.820.0120 • canadasales@rwc.com • holdrite.com

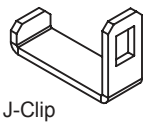
AN RWC BRAND

PRODUCT SPECIFICATION DRAWING
QUICK STRAP® #QS-50
Seismic support for water heaters








J-Clip


Carriage Bolt, #3/8-16 x 3.0" long


3/8" Hex Nut

ALL DIMENSIONS IN INCHES

The QUICK STRAP® #QS-50 is a seismic/earthquake support system for water heaters up to 80 U.S. gallons in size. The system includes: (4) Straps, (2) J-Clips, (2) 3/8" Carriage Bolts and (2) 3/8" Hex Nuts. The Quick Link® system allows for full adjustment from the front side of the water heater.

STATE OF CALIFORNIA — STATE ARCHITECT — ACCEPTABLE METHOD — No. 97-010

complies with IPC — UPC®

Product Information:

- Material: Strap, 24 gage CRS, galvanized
- California Division State Architect (DSA) approval #97-010
- UPC / IPC / IAPMO listed

Product Submittal	
Job Name:	
Date:	
Part Number:	Qty:
Architect / Owner:	
Contractor:	
Notes:	

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