



# Mechanical Systems

Part II – Plumbing



**HEARTLAND**  
*Homes*

Dream it. Build it. Love it!



InSinkErator  
4700 21<sup>st</sup> Street  
Racine, WI 53406

**Badger® 1 has a one year "We Come To You" In-Home Parts and Labor Warranty.**

All InSinkErator® models provide In-Home Service Warranties. That means We Come To You™ whenever your InSinkErator® food waste disposer or hot water dispenser needs service within the warranty period. To schedule a service call click [here](#), or just dial 1-800-558-5700, press 2, and enter your five-digit zip code. We'll provide you with the name and phone number of the factory authorized service agent nearest you. It's that simple.



Our We Come To You™ Service Warranty means we handle your service problems at your convenience in your home.

The InSinkErator® We Come To You™ In-Home Service Warranty. It's another InSinkErator® exclusive.





## ANGLE STOP VALVES

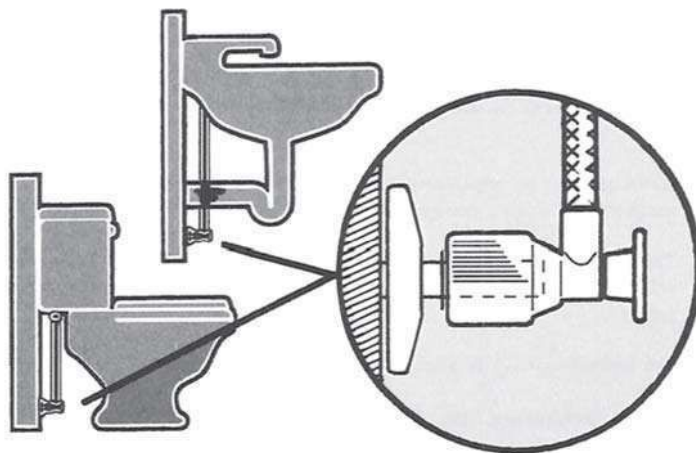
Operating your FlowTite Angle Stop Valve is easy!

To **SHUT OFF** the water supply to your sink or toilet:

**PULL** the round handle at the end of the valve.

To **RE-OPEN** the water supply, simply:

**PUSH** the handle back in.



## ENJOY THE LUXURY OF CONTINUOUS HOT WATER WHILE HAVING THE PEACE OF MIND OF SAVING ENERGY...



### CONTINUOUS HOT WATER

A tankless water heater heats water on demand. That means no storage or shortage of hot water.



### ENERGY SAVINGS

Save up to 40% of your current water heating bill.\*



### LONGER LASTING

Noritz tankless water heaters have a typical life of up to 20 years. This can be twice as long as a tank style unit!



### CLEAN & FRESH WATER

With tankless you avoid using water that has been stored in a tank with accumulated rust and scale.



### RESIDENTIAL WARRANTY

12-yr on the heat exchanger, 5-yr on parts & 1-yr reasonable labor. Labor will be paid to an authorized Noritz Service Rep. on pre-approved warranty repairs.

\*This information is provided as a reference based on average hot water usage and unaltered energy source. Actual results may vary. The cost savings factor reflects solely to the relative usage of the water heater. Actual gas utility bill may reflect the usage of other gas appliances (e.g. gas stoves, furnace, clothes dryer).

\*\*Refer to our warranty terms & conditions for more details.

## PERIODIC MAINTENANCE

To ensure optimum operation and service life of your tankless water heater, Noritz suggests the following treatment and maintenance measures to be taken based on the water hardness level:

Type of Water	Hardness Level	Treatment Device	Flush Frequency*
Soft	0-1 gpg (0-17 mg/L)	None	None
Slightly Hard	1-3 gpg (17-51 mg/L)	None	None
Moderately Hard	3-7 gpg (51-120 mg/L)	ScaleShield	Once a Year
Hard	7-10 gpg (120-171 mg/L)	ScaleShield	Once a Year
Very Hard	10-14 gpg (171-239 mg/L)	Water Softener	Softener Required
Extremely Hard	>14 gpg (>239 mg/L)	Water Softener	Softener Required

\*Install Noritz Isolation Valves to allow for flushing, refer to the back page for instructions

In order to ensure full warranty coverage when water hardness exceeds these levels, periodic maintenance such as descaling should be performed. Visit [support.noritz.com](http://support.noritz.com) or call 1-866-766-7489 for more info on descaling procedure.

## UNDERSTANDING ERROR CODES

(Displayed on the remote control)

Error Code	Cause	Action
11	Ignition error	Check whether the gas valve is open. Press the power button to turn the unit off, open a hot water fixture, and turn the unit back on. If the flashing number doesn't return the problem is solved.
05	Service warning	The water heater is equipped with an automatic service reminder. Contact the nearest Noritz agent.*
90	Abnormal combustion, low gas supply pressure	Have a professional check the gas supply pressure. Contact the nearest Noritz agent.
99	Abnormal combustion	Contact the nearest Noritz agent.

Refer to the Owner's Guide for more details on error codes.

## FOLLOW UP SERVICE

First follow the instructions in the Owner's Guide, in the troubleshooting section. If the error is not corrected, contact Noritz America Technical Support at 866-766-7489. We will need to know the following:

- 1 The Model (check the rating plate - see p.4 of the Owner's Guide for the location of the label)
- 2 Date of purchase (see the warranty)
- 3 Details of problem (flashing error codes, etc., in as much detail as possible)
- 4 Your name, address, and telephone number
- 5 Desired date of visit

Service must be performed by a qualified installer, service agency, or the gas supplier.



## Descale Procedure

This instructional manual is only intended for use by a qualified service professional or authorized Noritz Service Representative. Any unauthorized use of this manual may result in voiding the warranty.



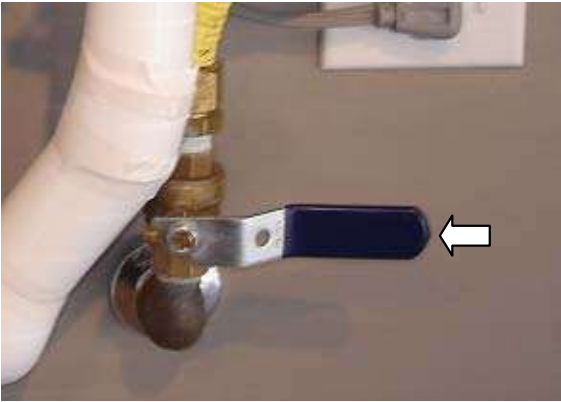
Please contact Noritz Technical Support (866-766-7489) for additional support.

**Noritz America Corporation**

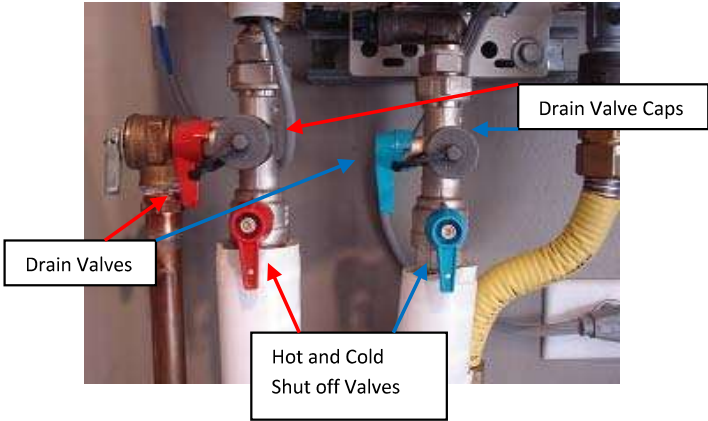
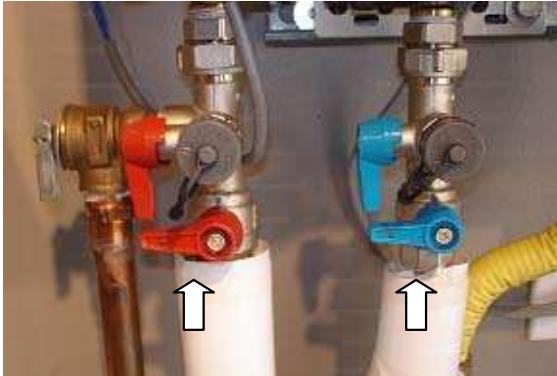

11160 Grace Avenue, Fountain Valley, CA 92708

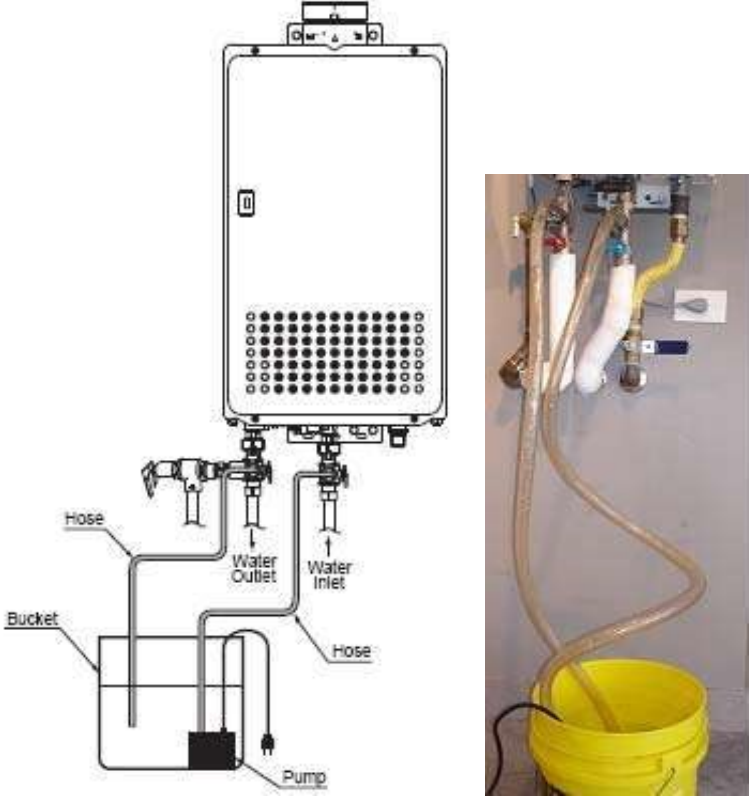


Phone 866-766-7489 Fax 714-241-1196

## Descale Procedure




Procedure	Diagram
<p>1. Items needed to perform a descale</p> <ul style="list-style-type: none"> <li>(1) Pump</li> <li>(2) Bucket</li> <li>(3) Hoses</li> <li>(4) 1 gallon CLR &amp; 3 gallons Water or 4-5 gallons Vinegar</li> </ul> <p><b>NOTE: When units are connected with a quick connect cord or on a system controller, the units will need to be disconnected and descaled individually.</b></p>	
<p>2. Turn the unit on with the Power Button on the Remote Controller, if no Remote Controller make sure the unit is plugged into power</p> <p>3. Turn off gas supply valve</p>	 




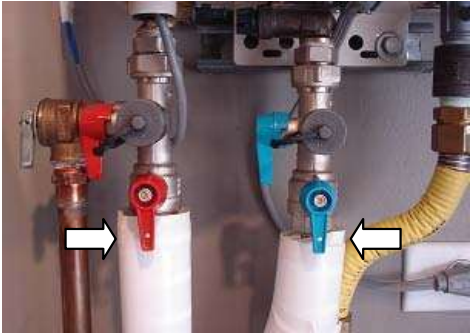


Procedure	Diagram
<p>4. Locate the hot and cold water shut off valves, drain valves, and drain valve caps</p>	 <p>Drain Valve Caps</p> <p>Drain Valves</p> <p>Hot and Cold Shut off Valves</p>
<p>5. Close both the hot and cold water shut off valves</p>	
<p>6. Remove the drain valve caps on both the hot and cold side</p>	

Procedure	Diagram
<p>7. Connect the pump outlet hose to the cold water drain valve</p> <p>8. Connect a drain hose to the hot water drain valve</p>	 <p>The diagram on the left shows a schematic of a water heater with labels: 'Hose' pointing to the inlet line, 'Water Outlet' pointing to the cold water drain valve at the bottom left, 'Water Inlet' pointing to the hot water drain valve at the bottom right, 'Bucket' pointing to a container for the pump, and 'Pump' pointing to the submersible pump unit. To the right is a photograph showing the actual water heater with clear hoses connected to the drain valves and leading down to a yellow bucket.</p>
<p>9. Pour approximately 4-5 gallons of vinegar or a solution of 1 gallon CLR and 3 gallons water into a bucket</p> <p>10. Place both the pump with inlet hose attached and drain outlet hose into the pail</p>	 <p>A photograph showing a black submersible pump with its clear inlet and outlet hoses placed inside a yellow bucket filled with a yellow liquid solution.</p>
<p>11. Open both drain valves lever handles on the isolation valves</p>	 <p>A close-up photograph of the isolation valves on the water heater's drain pipes. Two white arrows point to the red and blue lever handles, which are in the open position.</p>



Procedure	Diagram
<p>12. Turn on pump. The unit will attempt to ignite but because the gas is turned off it will not ignite. If you have a remote controller, a number "11" should flash on the remote controller after about a minute. DO NOT RESET THE UNIT.</p> <p>13. Allow the solution to circulate for about 1 hour</p>	
<p>14. Turn the pump off and close the cold water drain valve</p> <p>15. Remove the hose from the cold water drain valve and replace cap onto the drain valve outlet.</p> <p>16. Remove the pump and inlet hose from the bucket and empty the solution.</p>	
<p>17. Put the hot water drain hose back into the bucket and open the cold water main valve. This procedure will flush out the heater with fresh cold water. Flush for at least 5 minutes or until 20 gallons of water has passed through the heater</p>	

Procedure	Diagram
<p><b>Note:</b> If you have a condensing model (<b>NRC111, NCC199, N-0841MC, or N-0842MC ONLY</b>), carefully unscrew the water drain valve from the bottom of the water heater. The system will be under pressure and the drain valve will only require a couple of turns to allow sufficient flow from the drain. Place the bucket under the unit and flush for about 10 seconds.</p>	
<p>18. Close the cold water main valve and clean the water filter. Place the filter back into the unit</p>	

Procedure	Diagram
<p>19. Close the hot water drain valve, remove the drain hose and replace the cap on hot water drain valve outlet</p>	 <p>A close-up photograph of a hot water drain valve. The valve has a red handle and is connected to a white pipe. A white arrow points to the red handle, indicating it should be closed.</p>
<p>20. Open both the hot and cold water main valves.</p>	 <p>A close-up photograph of hot and cold water main valves. The hot water valve has a red handle and the cold water valve has a blue handle. White arrows point to both handles, indicating they should be opened.</p>
<p>21. Open the gas supply valve and reset the unit by turning the power off and then on again using the Power Button on the Remote Controller. If no Remote Controller is installed, disconnect electrical power to the unit and then reconnect to electrical power, this will reset the unit.</p>	 <p>A close-up photograph of a gas supply valve. The valve has a blue handle and is connected to a white pipe. A white arrow points to the blue handle, indicating it should be opened.</p>  <p>A photograph of a Noritz water heater control panel. The panel features a digital display showing '120 F'. To the right of the display are several buttons: 'UP', 'DOWN', 'POWER ON/OFF', and 'FLOW METER ALARM SET'. A white arrow points to the 'POWER ON/OFF' button, indicating it should be pressed to reset the unit.</p>

## PROLINE®

### COMMERCIAL-GRADE RESIDENTIAL

#### ENHANCED HEATING ELEMENTS

- Dual 4500 watt elements for faster recovery and reliable operation.\*
- Incoloy stainless steel lower element lasts longer than a standard copper element.

#### SELF-CLEANING DIP TUBE

- Helps reduce lime and sediment buildup and maximizes hot water output. Made from long-lasting PEX cross-linked polymer (self-cleaning design is not used on lowboy models).

#### HIGH ENERGY FACTORS

- Eco-friendly non-CFC foam insulation, heat traps and other features combine to yield a higher 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 Code 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 LIMITED PARTS WARRANTY

- For complete information, consult written warranty or go to [americanwaterheater.com](http://americanwaterheater.com).

\*Model E6N 20L has a single element.





# COMMERCIAL-GRADE RESIDENTIAL ELECTRIC WATER HEATERS

## HYBRID ELECTRIC HEAT PUMP

The Hybrid Electric heat pump water heater from American is the most cost effective energy-efficient option available for consumers who want to save money on their utility bills. The Hybrid Electric heat pump can reduce water heating costs up to 73% and provide payback in 2-3 years. With annual savings of \$305 or more, there is no better way to go green.

### HOW DO THEY WORK?

- Absorb ambient heat from the surrounding air to heat water using a compressor and environmentally-friendly R134a refrigerant
  - Self-contained heat pump unit is integrated into the top of the tank
  - Multiple operating modes to maximize efficiency and performance

**QUALIFIES FOR MANY STATE AND LOCAL UTILITY REBATES -  
CHECK [WWW.DSIREUSA.ORG](http://WWW.DSIREUSA.ORG)**

### INCREASED ENERGY EFFICIENCY

- Improved efficiency designed in, to ensure available hot water at the lowest possible cost
- Up to a 3.52 Uniform Energy Factor (UEF) Rating conserves energy and meets ENERGY STAR® qualifications

### CHOICE OF OPERATING MODES

- Select from Efficiency, Hybrid, or Electric modes to match heating requirements to environmental conditions.
- Hybrid mode automatically adjusts between compressor and element, depending upon heat requirements.
- Vacation mode reduces operating costs and provides freeze protection during extended absence.

### BACKUP ELECTRIC ELEMENTS

- Long-lasting backup heating elements help heat water according to environmental conditions, demand, and the chosen operating modes.

### DRY FIRE PROTECTION

- Control system checks to ensure the tank is full of water during start up to prevent dry firing the heating elements.

### OPTIONAL AIR DUCT ADAPTER KIT

- Permits installation in confined spaces

### COREGARD™ ANODE ROD

- Our anode rod has a stainless steel core that extends the life of the anode rod allowing superior tank protection far longer than standard anode rods.
- 66 and 80 gallon models have dual anodes for added protection.

### ELECTRONIC USER INTERFACE

- User-friendly electronic interface allows easy control of temperature setting, operating mode, and communicates diagnostics
- Easy to read temperature display (see back) shows temperature in °F or °C.
- Advanced diagnostics convey error messages for service purposes. The last four error messages are saved in the control system memory.

### OTHER FEATURES

- Ideal for basements or garage installations; the compressor transfers heat to the water while dehumidifying and cooling the ambient air.
- Washable air filter is easily removed for routine cleaning.

### SIX YEAR LIMITED WARRANTY

- For complete information, consult written warranty or go to [americanwaterheater.com](http://americanwaterheater.com).





## POWERFLEX® POWER VENT



### VERSATILE POWER VENT DESIGN

- All models feature an exclusive 3-position rotatable blower outlet which adds flexibility
- Combined horizontal and vertical vent runs up to 180 equivalent feet with 4" diameter venting (ABS, PVC, CPVC and polypropylene)
- All models are equipped with a protected sensor that detects the presence of flammable vapors and automatically disables the burner to prevent ignition
- Air intake snorkel elevates the inlet location of combustion air to prevent flammable vapors from entering the sealed combustion chamber
- Reduced NOx emissions comply with air quality management district regulations

### ENERGY STAR® QUALIFIED

- All models (except PVG62-75T76-NV) meet the ENERGY STAR® EF requirement and may also qualify for local utility and rebate programs.
- Built-in heat traps on the water inlet and outlet reduce the amount of heat lost through piping
- 2-inch, thick, "Environmentally-Friendly" foam insulation reduces the amount of heat loss and contributes to overall energy efficiency

### DYNACLEAN™ DIFFUSER DIP TUBE

- Reduces lime and sediment buildup and maximizes hot water output. Made from long-lasting PEX cross-linked polymer.

### HOT-SURFACE IGNITOR

- More robust and reliable than standing pilot, and reduces energy consumption

### BLUE DIAMOND® GLASS COATING

- Provides superior corrosion resistance compared to industry standard glass lining

### USER-FRIENDLY

- State-of-the-art electronic gas control provides more precise temperature control
- LED control light displays operation status and diagnostics information

### 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.

### AVAILABLE IN NATURAL GAS AND PROPANE

### DESIGN-CERTIFIED BY CSA INTERNATIONAL

- Certified at 150 PSI working pressure.
- Certified to ANSI Z21.10.1 - CSA 4.1 or ANSI A21.10.3 - CSA 4.3 standards governing storage tank-type water heaters

### 6-YEAR LIMITED TANK AND PARTS WARRANTY

- For complete information, consult written warranty or go to [americanwaterheater.com](http://americanwaterheater.com).



## KOHLER® Faucet Lifetime Limited Warranty

Kohler Co. warrants its faucets\* manufactured after January 1, 1997, to be leak and drip free during normal residential usage for as long as the original consumer owns their home. If the faucet should leak or drip during normal usage, Kohler Co. will, free of charge, mail the cartridge necessary to put the faucet in working condition. This warranty applies only to KOHLER faucets purchased and installed in North America, Central America, the Caribbean and South America, excluding Brazil ("Americas").

Kohler Co. also warrants all other aspects of the faucet or accessories and finishes\*\* to be free of defects during normal residential use for as long as the original consumer owns their home. Kohler Co. will, at its election, repair, replace, or make appropriate adjustment where Kohler Co. inspection discloses any such defect. Damage caused by accident, misuse, or abuse is not covered by this warranty. Improper care and cleaning will void the warranty\*\*\*. Proof of purchase (original sales receipt) must be provided to Kohler Co. with all warranty claims. Kohler Co. is not responsible for removal, installation, labor charges, or other incidental or consequential costs. In no event shall the liability of Kohler Co. exceed the purchase price of the faucet.

If the faucet is used in public space, for commercial, industrial, or institutional purposes, or is installed outside of the Americas, Kohler Co. warrants the faucet to be free from defects in material and workmanship for five (5) years from the date of purchase.

When used in a leased or rented residential single or multi-family unit, including duplexes, townhomes, condominiums, and apartments, Kohler Co. warrants the faucet to be free from defects in material and workmanship for a period of ten (10) years to the original consumer who owns the property but does not live there. Excluded are installations in public, industrial, or for any business purpose, such as hospitality or healthcare, which would be considered commercial use, referenced above.

If you believe that you have a warranty claim, 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. Please be sure to provide all pertinent information regarding your claim, including a complete description of the problem, the product, model number, color, finish, the date the product was purchased and from whom the product was purchased. Also include your proof of purchase (original sales receipt).

For other information call 1-800-4-KOHLER (1-800-456-4537), visit [www.us.kohler.com](http://www.us.kohler.com) within the USA, [www.ca.kohler.com](http://www.ca.kohler.com) within Canada, or [www.la.kohler.com](http://www.la.kohler.com) within Latin America. Kohler Co.'s sales organization in Mexico is Kohler Trading Mexico S. de R.L. de C.V., Autopista Monterrey-Cadereyta Km 19, Edificio 1, Interior B, Lomas del Sol, Cd. Benito Juárez, Nuevo León C.P. 67254 RFC KTM170118KW2.

**KOHLER CO. AND/OR SELLER ARE PROVIDING THESE WARRANTIES IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. KOHLER CO. AND/OR SELLER DISCLAIM ALL LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES.** Some jurisdictions do not allow limitations of how long an implied warranty lasts or the exclusion or limitation of such damages, so these limitations and exclusions may not apply to you. This warranty gives the consumer specific legal rights. You may also have other rights that vary from jurisdiction to jurisdiction.

**This is Kohler Co.'s exclusive written warranty.**

\* Non-Vibrant and painted or powder coated finishes, fittings; all items within the "Fixture Related" section of the Kohler Faucets Price Book, drains, Duostrainer® sink strainers, soap/lotion dispensers, Moxie® Wireless Speaker; and faucets used in commercial settings, and outside of the Americas, are covered by Kohler Co.'s one-year limited warranty.

\*\* Excluded from this warranty are specialty and exclusive finishes. Organic, non-Vibrant®, non-chrome finishes are warranted only if manufactured after January 1, 2019.

\*\*\* Never use cleaners containing abrasive cleansers, ammonia, bleach, acids, waxes, alcohol, solvents not recommended for KOHLER finishes. This will void the warranty. See Care & Cleaning recommendations at [kohler.com/clean](http://kohler.com/clean).