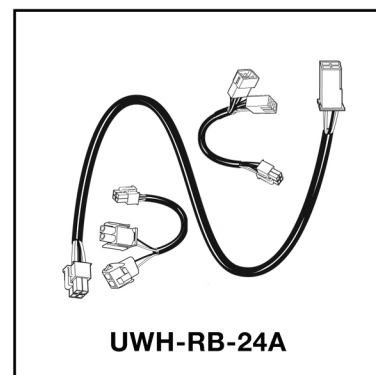
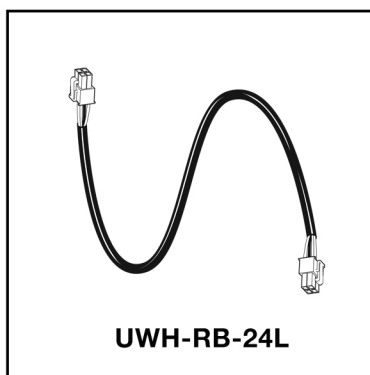
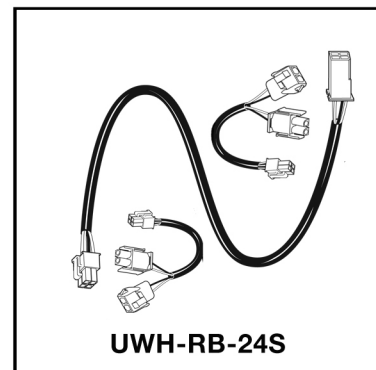
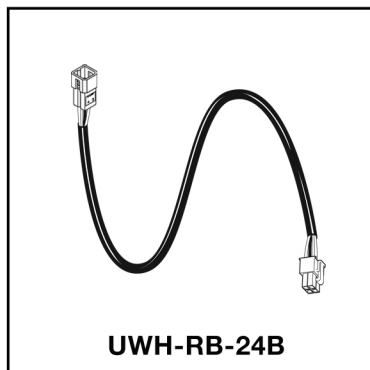


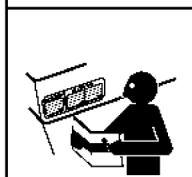


Model UWH-RB-24E Universal Wiring Harness

The Universal Wiring Harness allows the RB-24E LWCO to be connected to most residential hot water boilers that have a 24 volt burner circuit.



WARNING



- Before using this product read and understand instructions.
- Save these instructions for future reference.
- All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of plumbing, steam, hot water, and electrical equipment and/or systems in accordance with all applicable codes and ordinances.
- To prevent electrical shock, turn off the electrical power before making electrical connections.
- This low water cut-off must be installed in series with all other limit and operating controls installed on the boiler. After installation, check for proper operation of all of the operating controls, before leaving the site.
- We recommend that secondary (redundant) Low Water Cut-Off controls be installed on all boilers with heat input greater than 400,000 BTU/hour. At least two controls should be connected in series with the burner control circuit to provide safety redundancy protection should the boiler experience a low water condition. Moreover, at each annual out age, the low water cut-offs should be dismantled, inspected, cleaned, and checked for proper calibration and performance.

Failure to follow this warning could cause property damage, personal injury or death.

RB-24E SPECIFICATIONS

Temperature:

Storage: -40°F to 120°F (-40°C to 49°C)

Ambient: 32°F to 120°F (0°C to 49°C)

Humidity: 85% (non-condensing)

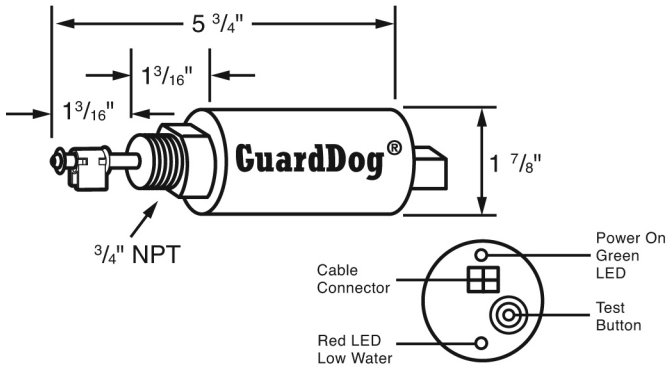
Maximum Water Pressure: 160 psi (11.2 kg/cm²)

Maximum Water Temperature: 250°F (121°C)

Electrical Ratings

Voltage	Power Consumption	Switching Capacity
24 VAC	2.5 VA	2A at 24 VAC

Enclosure Rating: NEMA 1 General Purpose



IMPORTANT: Do not use Model RB-24E on steam boilers.

IMPORTANT: Do not use on millivolt systems.

STEP 1 - Determine Where to Install the Low Water Cut-Off

Follow the installation instructions included with the RB-24E LWCO, determine where to locate the control. Please note that the connector cable included the UWH wiring harnesses is 5ft long which will determine where the RB-24E control is located in the boiler or piping.

STEP 2 - Electrical Wiring Options

WARNING

- To prevent electrical shock, turn off the electrical power before making electrical connections.
- This low water cut-off must be installed in series with all other limit and operating controls installed on the boiler. After installation, check for proper operation of all of the limit and operating controls, before leaving the site.

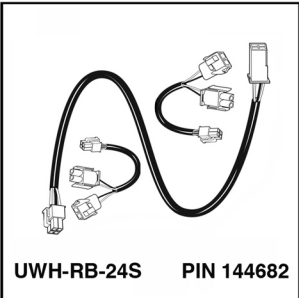
Failure to follow this warning could cause property damage, personal injury or death.

IMPORTANT: Before making any wiring connections to the boiler with the connector or 'Y' harnesses, You **MUST** wire the boiler per boiler manufacturer's recommendations and verify operation.

IMPORTANT: Universal wiring harness adaptors are now available for use with systems having modular plug-on burner controllers and vent dampers (sold separately).



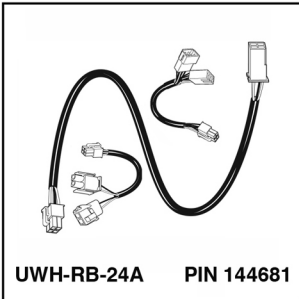
UWH-RB-24B PIN 144695



UWH-RB-24S PIN 144682



UWH-RB-24L PIN 144691



UWH-RB-24A PIN 144681

The **UWH-RB-24B** is for use on hot water boilers that have a harness plug connection.

The **UWH-RB-24A** is for use on hot water boilers that have a vent damper.

The **UWH-RB-24S** is for use on hot water boilers that have a transformer plug connection on the aquastat.

The **UWH-RB-24L** is for use on hot water boilers that have a control panel connection.

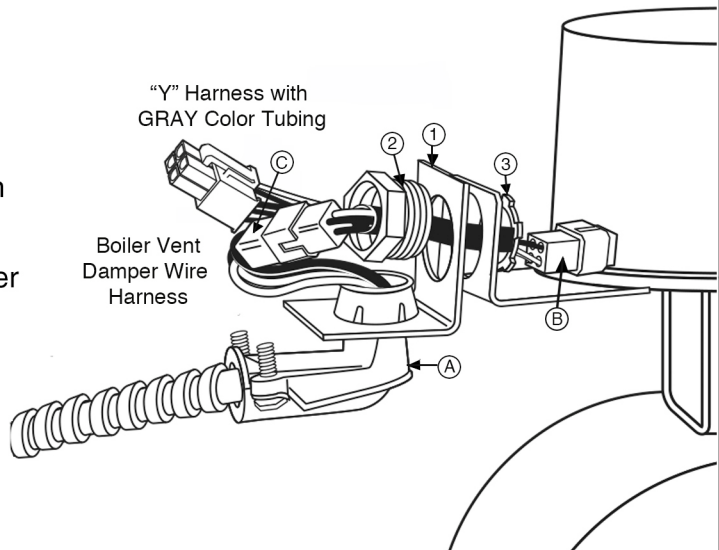
Option 1

RB-24E-A 4-Pin Damper 'Y' Harness with GRAY Color Tubing for Atmospheric Boilers

Install angle bracket (1) on vent damper using fitting (2) and nut (3).

- (A). Install BX connector to angle bracket.
- (B). Plug 4-pin connector of 'Y' harness to 4-pin connector on vent damper.
- (C). Plug 4-pin connector of boiler's vent damper wiring harness to connector of 'Y' harness.

NOTE
This 'Y' Harness can only be used with vent dampers with 4-pin connectors.

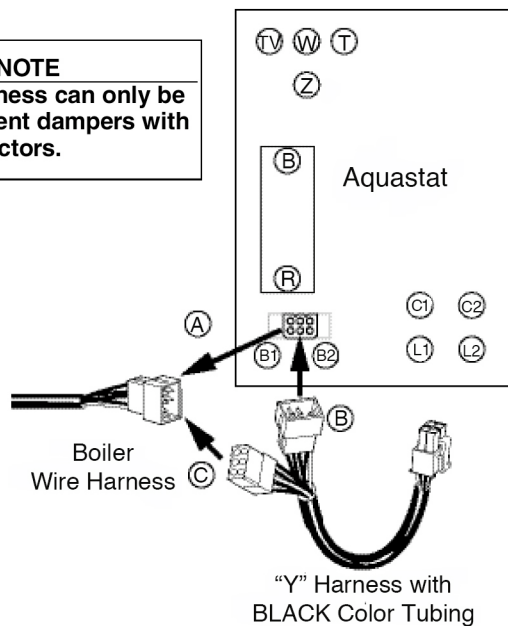


Option 2

RB-24E-A 6-Pin Damper 'Y' Harness with BLACK Color Tubing for Atmospheric Boilers

- (A). Remove 6-pin connector of damper wiring harness from connector on aquastat.
- (B). Plug 6-pin connector of damper 'Y' harness to connector on aquastat.
- (C). Plug connector of damper 'Y' harness to connector of boiler's damper wiring harness.

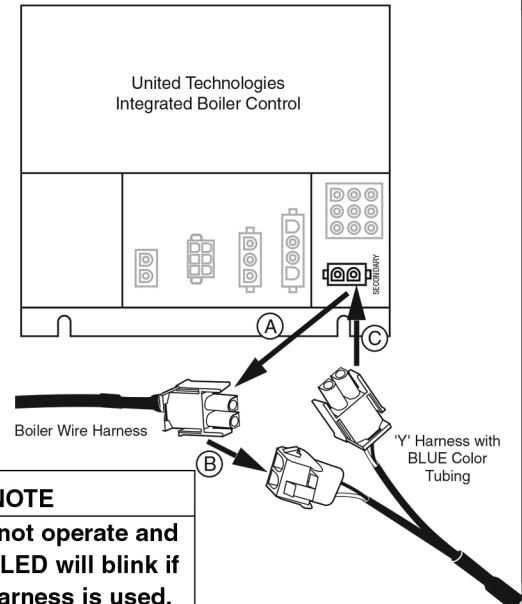
NOTE
This 'Y' Harness can only be used with vent dampers with 6-pin connectors.



Option 3

RB-24E-S Transformer 'Y' Harness with BLUE Color Tubing

- A.** Remove connector of boiler wiring harness from boiler control transformer connector.
- B.** Plug connector of boiler wiring harness to connector of 'Y' harness with BLUE color tubing.
- C.** Plug connector of 'Y' harness with BLUE color tubing to boiler control transformer connector.



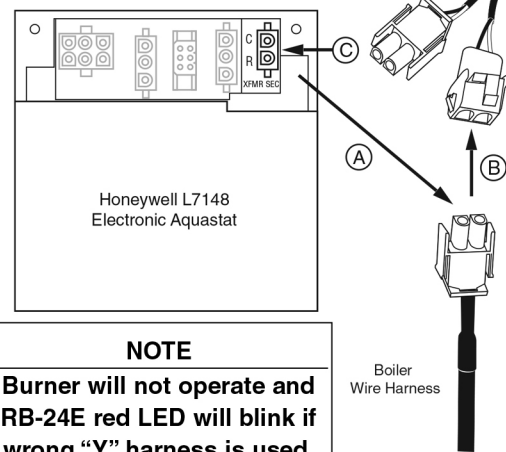
NOTE

Burner will not operate and RB-24E red LED will blink if wrong 'Y' harness is used.

Option 4

RB-24E-S Transformer 'Y' Harness with GREEN Color Tubing

- A.** Remove connector of boiler wiring harness from Aquastat transformer connector.
- B.** Plug connector of boiler wiring harness to connector of 'Y' harness with GREEN color tubing.
- C.** Plug connector of 'Y' harness with GREEN color tubing to Aquastat transformer connector.



NOTE

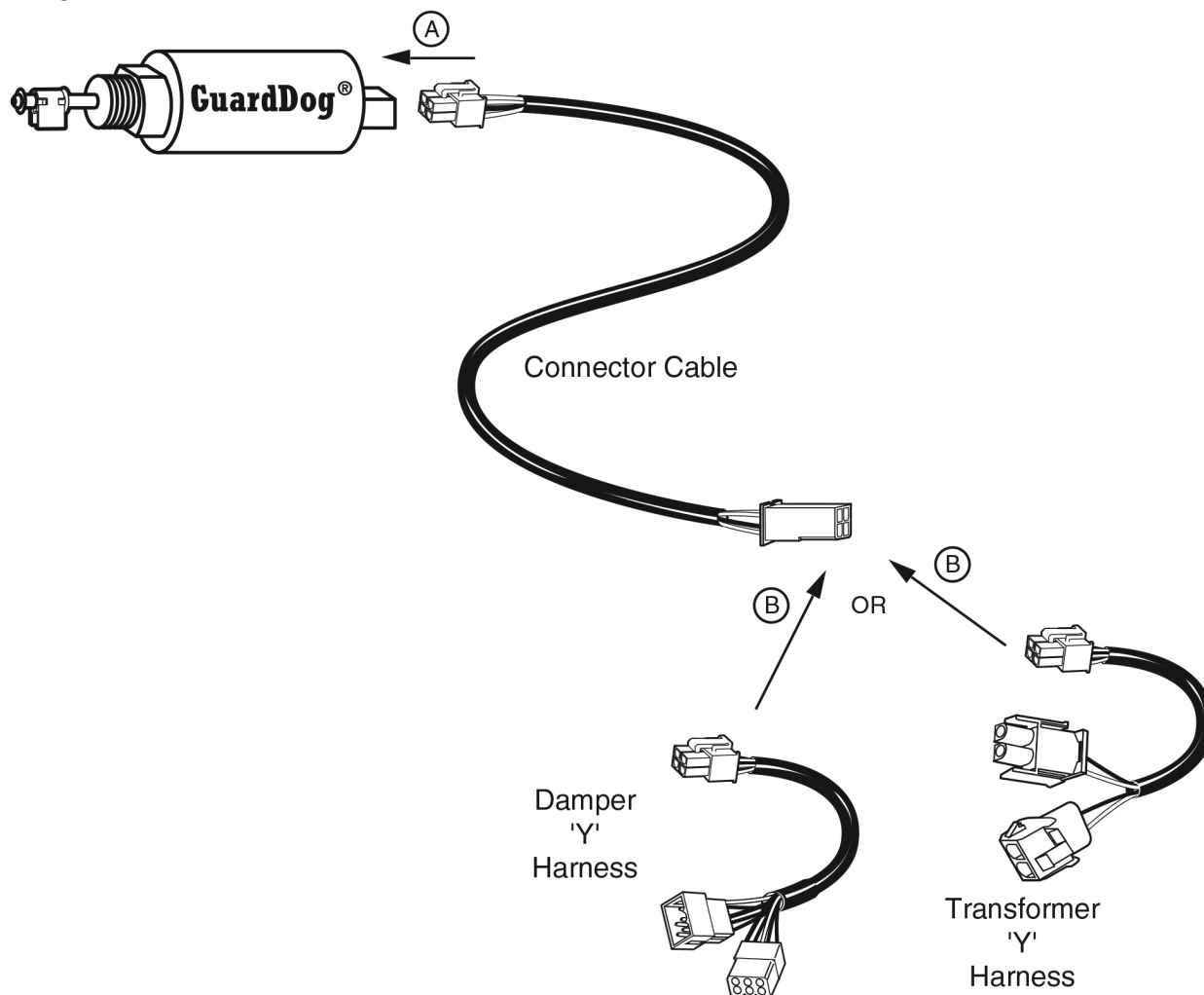
Burner will not operate and RB-24E red LED will blink if wrong "Y" harness is used.

STEP 3 - Connection to RB-24E Options

Option 1

RB-24E-A Damper 'Y' Harness or RB 24E-S Transformer 'Y' Harness

- (A.) Plug connector of cable into connector of RB-24E
- (B.) Plug connector of 'Y' harness into connector of cable.

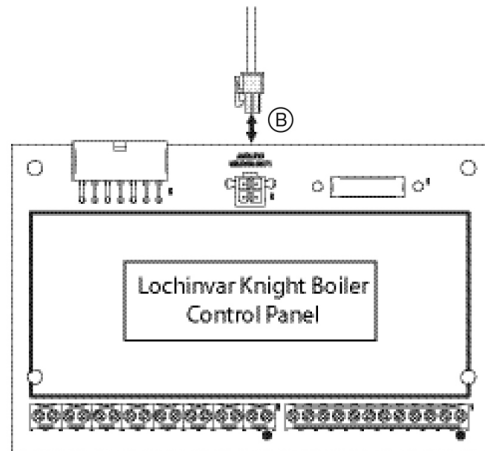


Option 2

RB-24E-L Connector

with Gray or Orange Color Tubing for Control Panel Connection

- (A.) Remove jumper plug from plug-in connector on control panel
- (B.) Plug connector of wiring harness into plug-in Connector on control panel.
- (C.) Plug connector of cable into connector of RB-24E.



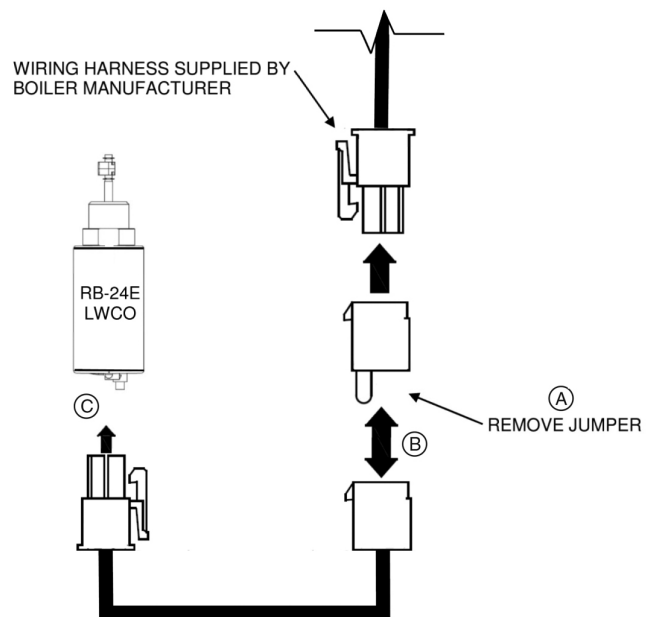
Option 3

RB-24E-B Connector

with Purple Color Tubing for Harness Plug Connection

- (A.) Remove jumper plug from plug-in connector on control panel
- (B.) Plug connector of wiring harness into plug-in Connector on harness plug connection.
- (C.) Plug connector of cable into connector of RB-24E.

Note: For Burnham Alpine Boiler

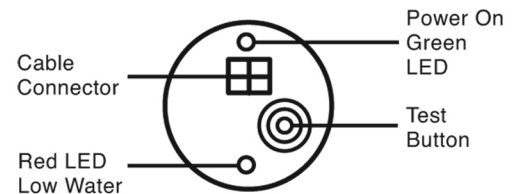
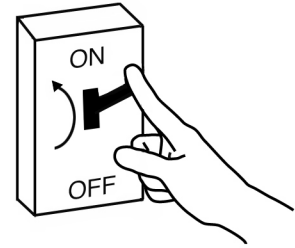


STEP 4 - Testing

- a. **Before filling the system**, turn on the electric power to the boiler. The low water cut-off's green "Power On" LED should be illuminated. With the room thermostat set on "heat", confirm that the burner **will not** operate without water in the system. The low water cut-off's red LED should be illuminated.

NOTE: The burner will come on briefly (1 second or less) and then shut off to verify proper operation.

- b. Fill the system with water. When water is just above the probe, the low water cut-off's red LED should turn off.
- c. Check and confirm that the boiler's thermostat, burner and safety limits are operating properly after filling system and before leaving the site.
- d. Check the threaded connection of the low water cut-off for leakage. Tighten, if necessary.



Testing Control Using "Test Button"

Pressing the "Test Button" interrupts the probe circuit which simulates water off the probe.

- a. Press and hold "test button" while burner is running.
- b. The burner should turn OFF and red light turn ON if burner is wired correctly.
- c. Release the test button and the red light should turn off and the boiler should turn on provided that the boiler water is in contact with the probe.

INSTALLATION COMPLETE

TROUBLESHOOTING:

If control fails to operate, perform the following diagnostic checks.

1. Check to be sure that the water level in the boiler is at or above the level of the probe.
2. Re-check all wiring to ensure proper connections as specified in boiler manufacturers wiring diagrams.
3. Check to ensure that PTFE tape has not been used on the threaded connection of the probe to the boiler.
4. Check the quality of the boiler water to ensure adequate conductance.

Boiler Does Not Turn Off (when water is below probe)

- Turn off boiler and check boiler wiring connections.
- Turn off boiler, drain boiler and remove control to check if the tip of the probe is touching a metal surface.

Boiler Does Not Turn ON

- Make sure water is above the level of the probe.
- Make sure probe is installed in a location where an air pocket cannot develop.
- Check boiler wiring connections.

Boiler Does Not Turn ON and RB-24E Red LED blinking

- Problem is wrong transformer 'Y' harness.
- Turn off boiler and install correct transformer 'Y' harness.

MAINTENANCE

SCHEDULE:

- Test the low water cut-off annually or more frequently.
- Remove and inspect the self-cleaning probe every 5 years.
- Replace the low water cut-off every 15 years.

NOTE

Clean probe by wiping with non-abrasive cloth and rinsing with clean water. DO NOT use sharp instruments to remove any accumulations of rust or scale.



CAUTION

Replace Probe if:

- PTFE insulator is cracked or worn.
- Probe is loose.

Failure to follow this caution could cause property damage, personal injury or death.

COMMERCIAL WARRANTY

Warranty. For goods sold to commercial buyers, Seller warrants the goods sold to Buyer hereunder (with the exception of membranes, seals, gaskets, elastomer materials, coatings and other "wear parts" or consumables all of which are not warranted except as otherwise provided in the quotation or sales form) will be (i) be built in accordance with the specifications referred to in the quotation or sales form, if such specifications are expressly made a part of this Agreement, and (ii) free from defects in material and workmanship for a period of one (1) year from the date of installation or two (2) years from the date of manufacture, whichever shall occur first, unless a longer period is specified in the product documentation (the "Warranty").

Except as otherwise required by law, Seller shall, at its option and at no cost to Buyer, either repair or replace any product which fails to conform with the Warranty provided Buyer gives written notice to Seller of any defects in material or workmanship within ten (10) days of the date when any defects or non-conformance are first manifest. Under either repair or replacement option, Seller shall not be obligated to remove or pay for the removal of the defective product or install or pay for the installation of the replaced or repaired product and Buyer shall be responsible for all other costs, including, but not limited to, service costs, shipping fees and expenses. Seller shall have sole discretion as to the method or means of repair or replacement. Buyer's failure to comply with Seller's repair or replacement directions shall terminate Seller's obligations under this Warranty and render the Warranty void. Any parts repaired or replaced under the Warranty are warranted only for the balance of the warranty period on the parts that were repaired or replaced. Seller shall have no warranty obligations to Buyer with respect to any product or parts of a product that have been: (a) repaired by third parties other than Seller or without Seller's written approval; (b) subject to misuse, misapplication, neglect, alteration, accident, or physical damage; (c) used in a manner contrary to Seller's instructions for installation, operation and maintenance; (d) damaged from ordinary wear and tear, corrosion, or chemical attack; (e) damaged due to abnormal conditions, vibration, failure to properly prime, or operation without flow; (f) damaged due to a defective power supply or improper electrical protection; or (g) damaged resulting from the use of accessory equipment not sold or approved by Seller. In any case of products not manufactured by Seller, there is no warranty from Seller; however, Seller will extend to Buyer any warranty received from Seller's supplier of such products.

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Warranty. For goods sold for personal, family or household purposes, Seller warrants the goods purchased hereunder (with the exception of membranes, seals, gaskets, elastomer materials, coatings and other "wear parts" or consumables all of which are not warranted except as otherwise provided in the quotation or sales form) will be free from defects in material and workmanship for a period of one (1) year from the date of installation or two (2) years from the product date code, whichever shall occur first, unless a longer period is provided by law or is specified in the product documentation (the "Warranty").

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To make a warranty claim, check first with the dealer from whom you purchased the product or call +1-847-966-3700 for the name and location of the nearest dealer providing warranty service.

xylem
Let's Solve Water

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