

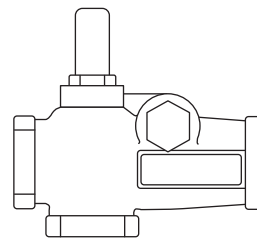


# Model TC-4 Test-N-Check® Valves For Hot Water Boilers

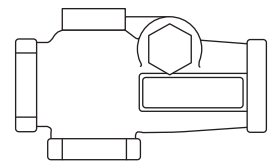
Does in minutes what used to take hours.

**Applications:**

For isolation of equalizing lines during low water cut-off testing.



TC-U Upper Valve



TC-L Lower Valve

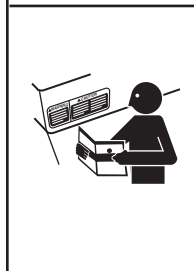


## OPERATION

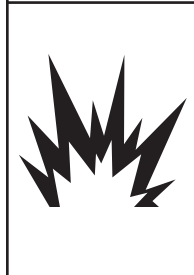
**Maximum Operating Pressure:** 160 psi (11 kg/cm<sup>2</sup>)

**Maximum Operating Temperature:** 250°F (121°C)

### **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, and electrical equipment and/or systems in accordance with all applicable codes and ordinances.



- To prevent serious burns, the boiler must be cooled to 80°F (27°C) and the pressure must be 0 psi (0 bar) before servicing.
- To prevent serious personal injury from steam blow-down, connect a drain pipe to the control opening to avoid exposure to steam discharge.
- 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](http://www.P65warnings.ca.gov).



- Previous controls should never be installed on a new system. Always install new controls on a new boiler or system.
- Failure to follow this warning could cause property damage, personal injury or death.

**CAUTION:**

- A more frequent replacement interval may be necessary based on the condition of the unit at time of inspection. McDonnell & Miller's warranty is one (1) year from date of installation or two (2) years from the date of manufacture.

# TEST-N-CHECK® VALVES

## Simplify Testing of Low Water Cut-offs on Hot Water Boilers

### TEST-N-CHECK® VALVES

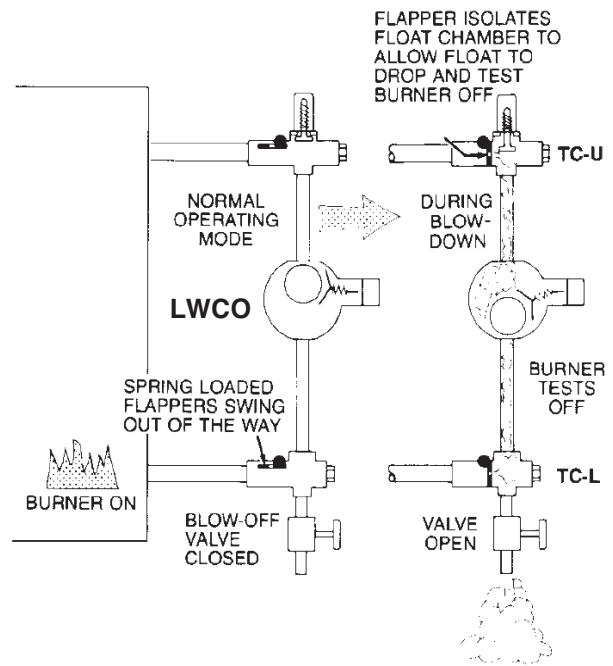
#### SIMPLIFY TESTING OF LOW WATER CUT-OFFS ON HOT WATER BOILERS

Good operating practice requires installation of a low water cut-off on a hot water boiler and that it be checked regularly to make certain the control will function properly in the event of a low water condition. Boiler owners and installers need a quick and efficient way to test a low water cut-off on a hot water boiler. Simply opening a blow-off valve below the float chamber may not serve as a valid test and is excessively wasteful of boiler water and fuel. The water level in the float chamber, and the float, must drop far enough to start the control through its cycle of operation. However, water flowing in through the equalizing piping may replenish the level in the float chamber fast enough to delay the necessary float drop, or prevent it altogether.

McDONNELL & MILLER Test-N-Check® Valves have been specially designed for such installations. In normal operation, they allow free circulation of water through the equalizing piping and float chamber. But any sudden onrush of water, such as caused by opening the blowoff, snaps shut a damper in each valve to restrict flow to the float chamber. Water level in the float chamber falls quickly to start the control through its operating cycle, with a minimum loss of boiler water. When blow-off is closed, dampers return to normally open position.

McDONNELL & MILLER Test-N-Check® Valves simply replace the crosses above and below the control in the equalizing lines. Valves have the same dimensions as standard crosses and nipple in the horizontal leg, and allow normal rod clean-out of pipe in both directions. Connections are 1" NPT female tappings. Upper and lower valves are identical, except that the upper valve has vacuum breaker built in to allow for rapid evacuation of the float chamber. They are furnished in sets-one upper and one lower valve, to equip one equalizing line. They can be used with all McDonnell & Miller Low Water Cut-Offs for hot water boilers.

### OPERATION OF THE TC-4



### CAUTION



To prevent serious personal injury from steam pipe blow down, connect a drain pipe to the control opening to avoid exposure to steam discharge. If vacuum breaker stem is accidentally depressed, hot water could be discharged causing burns.

Failure to follow this caution could cause personal injury.

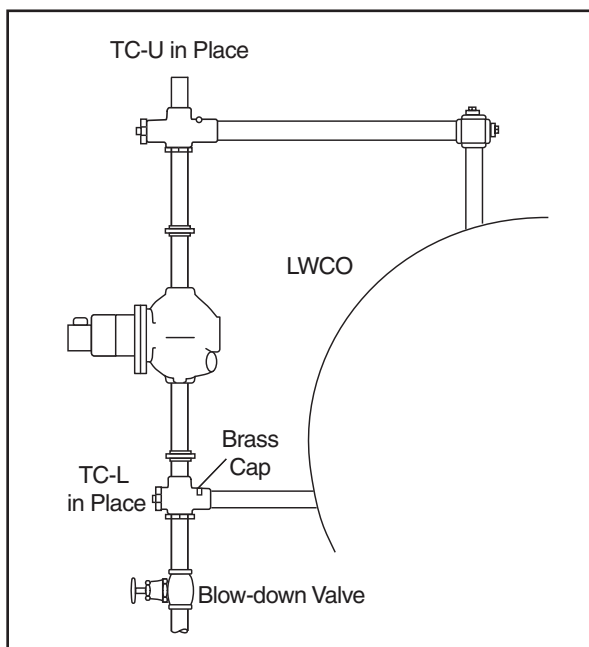
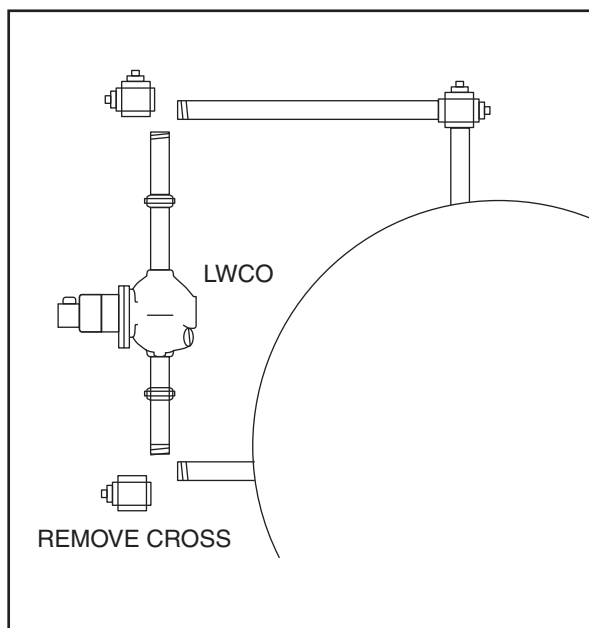
### IMPORTANT:

- When using tape sealant or thread joint compound on pipe or fittings with external threads follow manufacturer's instructions. Do not use tape sealant or thread joint compound on first thread.

# TEST-N-CHECK® VALVES

## Installation of the TC-4 Test-N-Check® Valve with an Existing Low Water Cut-off

1. Remove the existing low water cut-off by disconnecting the unions in the equalizing lines.
2. Remove the crosses from the upper and lower equalizing lines.
3. Assemble the TC-U (the upper Test-N-Check® valve, with the vacuum breaker) into the upper equalizing line replacing the cross. **NOTE:** The vacuum breaker must be on the top and the long leg must face the boiler.
4. Assemble the TC-L (the lower Test-N-Check® valve, without the vacuum breaker) into the lower equalizing line replacing the cross. **NOTE:** The brass cap must be located above the center of the lower equalizing line, and the long leg must face the boiler.
5. Assemble the blow-down valve into the bottom port of the TC-L.
6. Assemble 1" NPT pipe plugs into the remaining open port in both the TC-U and TC-L. **NOTE:** The addition of the Test-N-Check® valves in place of standard crosses will extend the low water cut-off approximately 2" farther from the boiler.
7. Reassemble the low water cut-off and vertical equalizing pipe to the upper and lower Test-N-Check® valves.
8. After all piping assembly has been completed, refill the system with water, turn on all electrical supply and bring system to operating conditions. After system reaches operating pressure, inspect to make sure no leaks exist at the threaded connections. Test valves by opening blow-down valve while burner is on to make sure valves operate correctly and low water cut-off shuts burner off.



### CAUTION



To prevent serious personal injury from steam pipe blow down, connect a drain pipe to the control opening to avoid exposure to steam discharge. If vacuum breaker stem is accidentally depressed, hot water could be discharged causing burns. Failure to follow this caution could cause personal injury.

### IMPORTANT:

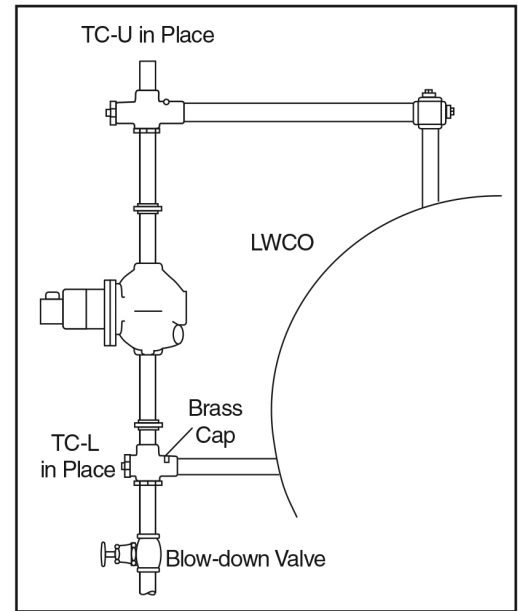
- When using tape sealant or thread joint compound on pipe or fittings with external threads follow manufacturer's instructions. Do not use tape sealant or thread joint compound on first thread.

# TEST-N-CHECK® VALVES

## Simplify Testing of Low Water Cut-offs on Hot Water Boilers

### Installation of the TC-4 Test-N-Check® Valves with a New Low Water Cut-off

1. Assemble the TC-U (the upper Test-N-Check® valve, with the vacuum breaker) into the upper equalizing line in place of the cross described in the low water cut-off installation instructions. **NOTE:** The vacuum breaker must be on the top and the long leg must face the boiler. **NOTE:** Make sure low water cut-off position is located in accordance with the boiler manufacturer's recommended cut-off level.
2. Assemble the TC-L (the lower Test-N-Check® valve, without the vacuum breaker) into the lower equalizing line in place of the cross described in the low water cut-off installation instructions. **NOTE:** The brass cap must be located above the center of the lower equalizing line, and the long leg must face the boiler.
3. Assemble the blow-down valve into the bottom port of the TC-L.
4. Assemble 1" NPT pipe plugs into the remaining open port in both the TC-U and TC-L.
5. Complete the installation as described in the low water cut-off installation instructions.
6. After all piping assembly has been completed, refill the system with water, turn on all electrical supply and bring system to operating conditions. After system reaches operating pressure, inspect to make sure no leaks exist at the threaded connections. Test valves by opening blow-down valve while burner is on, to make sure valves operate correctly and low water cut-off shuts burner off.



#### CAUTION



To prevent serious personal injury from steam pipe blow down, connect a drain pipe to the control opening to avoid exposure to steam discharge.

If vacuum breaker stem is accidentally depressed, hot water could be discharged causing burns.

Failure to follow this caution could cause personal injury.

#### IMPORTANT:

- When using tape sealant or thread joint compound on pipe or fittings with external threads follow manufacturer's instructions. Do not use tape sealant or thread joint compound on first thread.

#### 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) 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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#### LIMITED CONSUMER WARRANTY

**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").

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 this 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. The Warranty is conditioned on Buyer giving written notice to Seller of any defects in material or workmanship of warranted goods within ten (10) days of the date when any defects are first manifest.

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.

**THE FOREGOING WARRANTY IS PROVIDED IN PLACE OF ALL OTHER EXPRESS WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO ONE (1) YEAR FROM THE DATE OF INSTALLATION OR TWO (2) YEARS FROM THE PRODUCT DATE CODE, WHICHEVER SHALL OCCUR FIRST. EXCEPT AS OTHERWISE REQUIRED BY LAW, BUYER'S EXCLUSIVE REMEDY AND SELLER'S AGGREGATE LIABILITY FOR BREACH OF ANY OF THE FOREGOING WARRANTIES ARE LIMITED TO REPAIRING OR REPLACING THE PRODUCT AND SHALL IN ALL CASES BE LIMITED TO THE AMOUNT PAID BY THE BUYER FOR THE DEFECTIVE PRODUCT. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY OTHER FORM OF DAMAGES, WHETHER DIRECT, INDIRECT, LIQUIDATED, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY OR SPECIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PROFIT, LOSS OF ANTICIPATED SAVINGS OR REVENUE, LOSS OF INCOME, LOSS OF BUSINESS, LOSS OF PRODUCTION, LOSS OF OPPORTUNITY OR LOSS OF REPUTATION.**

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

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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