Jeremiah W. (Jay) Nixon
Governor
State of Missouri

Department of Insurance
Financial Institutions
and Professional Registration
John M. Huff, Director

Jane A. Rackers, Division Director
DIVISION OF PROFESSIONAL REGISTRATION

STATE BOARD OF EMBALMERS AND FUNERAL DIRECTORS
3605 Missouri Boulevard
P.O. Box 423
Jefferson City, MO 65102-0423
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Becky Dunn
Executive Director

573-751-0813
573-751-1155 FAX
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800-735-2466 Voice Relay Missouri

Department of Natural Resources Backflow Prevention Requirements

Information Enclosed:

- Letter from DNR that explains which device funeral homes with an embalming room is required to have.
- DNR regulations relating to Backflow Prevention
- Backflow Prevention Assembly Test Data and Maintenance Report- This report is what the certified inspectors should leave at the funeral home once the inspection is complete.
- Listing of approved backflow prevention assemblies
- The following website was provided by DNR to assist you in learning more about the devices http://www.usc.edu/dept/fccchr/list.html
- Contact information for DNR and their website http://www.dnr.mo.gov/env/wpp/backflow/
  Phone: 573-751-5331
  FAX: 573-751-3110

Below is a picture of one of the approved Reduced Pressure Principle Devices:

STATE OF MISSOURI
Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

October 21, 2008

RECEIVED
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STATE BOARD OFFICE

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Ms. Lori Hayes
Funeral Establishment Inspector
State Board of Embalmers and Funeral Directors
P.O. Box 423
Jefferson City, MO 65102

Dear Ms. Hayes:

As requested, the Public Drinking Water Branch (PDWB) is providing you with information to clarify the need and requirement for a state approved backflow prevention assembly on funeral homes, morgues, mortuaries, etc.

The level of protection and the type of approved backflow prevention device required for a facility, home, business, etc. is dependent upon the level of backflow hazard present that could allow a contaminant or source of pollutant into the potable public water system either though backsiphonage or backpressure.

There are two Classes of backflow hazards defined in Missouri Safe Drinking Water Regulations 10 CSR 60-11. A Class I backflow hazard is one that presents an actual or potential hazard to customers of the public water system should backflow occur. A Class II backflow hazard is one that threatens to degrade the water quality of the public water system should backflow occur. You may visit our website for a summary of backflow prevention regulations, basics of backflow prevention, frequently asked questions and other helpful information at www.dnr.mo.gov/env/wpp/backflow. I've included some helpful information (copy enclosed) with this letter.

Missouri Safe Drinking Water Regulation 10 CSR 60-11.010(3)(A)2. provides a list, not all inclusive, of actual or potential Class I and Class II backflow hazards. Hospitals, clinics, medical buildings, autopsy facilities, morgues, mortuaries, veterinary clinics, dental clinics, and other medical facilities are just some of the very few facilities identified in the regulation as an actual or potential Class I hazard.

A Class I Backflow Hazard (morgues, mortuaries, labs, boiler systems, pressurized heating/cooling systems, chilled water systems, fire sprinkler systems, etc.) requires installation of a reduced pressure principle backflow prevention assembly on the customer service line or construction of a department-approved air-gap in accordance with 10 CSR 60-11(4) and (5) of the rule. A Class II Backflow Hazard (sprinkler systems without chemical additives, irrigation

systems without chemical injection facilities, etc.) requires installation of a department-approved double check valve assembly on the customer service line. A list of department approved backflow prevention assemblies may be found at our website at www.dnr.mo.gov/env/wpp/backflow.

In addition to the list of potential hazards defined in the regulations, the supplier of water or local governmental agency may require protection from an actual or potential backflow hazard identified at any facility. The supplier of water may have written procedures that are more stringent than the provisions of the rule, but in no case can they be less stringent than the rule. In fact, some water suppliers may require a device on all commercial facilities even if the hazard is not currently present.

If you have any questions or concerns, please do not hesitate to contact me at (573) 751-4594. Thank you.

Sincerely,

WATER PROTECTION PROGAM

Deana L. Cash

Deana L. Cash, Environmental Engineer
Backflow Prevention State Coordinator
Public Drinking Water Branch

DLC:jb

Enclosure

Missouri Department of Natural Resources

Missouri Backflow Prevention

Water Protection Program fact sheet 1/2008

Backflow prevention for all community water systems is defined in state regulation 10 CSR 60-11.010-.030, revised in 1997 and effective on Jan. 1, 1998. The responsibilities of the customer, water supplier and the Missouri Department of Natural Resources remained much the same. However, a notable change to the reporting requirements was made. Under the revised regulations, the water supplier is required to notify the department anytime a backflow incident occurs. In the past, notification to the department of a backflow incident was a courtesy rather than a requirement. The regulation is available on the Missouri Secretary of State's Web site at www.sos.mo.gov/adrules/csr/current/10csr/10c60-11.pdf.

Backflow is prevented by the construction of an air-gap separation or the installation of either a reduced pressure principle assembly or a double check valve assembly on the customer service line. The department maintains a current list of approved backflow prevention assemblies. To be included on the list, the manufacturer of the device must obtain approval from the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California, www.usc.edu/dept/fccchr/. All air gaps shall be inspected when installed and at least annually thereafter by personnel from the water supplier. All backflow prevention assemblies shall be inspected and tested annually by a certified backflow prevention assembly tester.

Perhaps the most significant difference between the old and new regulation is the change in the requirement for obtaining certification as a backflow prevention assembly tester. Under the old regulation, the department reviewed and approved training courses offered for certification of backflow prevention assembly testers. Students successfully completing the course were added to the list of approved testers. Under the new regulation, each candidate for certification as a backflow prevention assembly tester must successfully pass a written and hands-on performance examination provided by either the American Backflow Prevention Association or the American Society of Sanitary Engineering. Certification is now granted based on performance-based criteria rather than specific course criteria.

The written examinations provided by both the American Backflow Prevention Association or the American Society of Sanitary Engineering contain about 100 questions covering the basic required knowledge for application and testing of backflow prevention assemblies. Most exams use basic knowledge questions to allow acceptance of the certification on a national level. However, the certifying agency has the option of using 15 questions specific to local requirements. A third-party agent must administer both the written and performance examinations. Course instructors may not test their own students.

For more information

Missouri Department of Natural Resources
Water Protection Program, Public Drinking Water Branch
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 751-5331 office
(573) 751-3110 fax
www.dnr.mo.gov/env/wppo/index.html

Missouri Department of Natural Resources

Basics of Backflow Prevention: Missouri Regulation 10 CSR 60-11.010-.030

Water Protection Program fact sheet 1/2008

Backflow Prevention

In 1997, the Missouri Department of Natural Resources revised a drinking water regulation entitled "Backflow Prevention." This revised regulation places certain responsibilities on water suppliers to ensure that customer facilities identified as actual or potential backflow hazards provide the necessary protection to prevent contaminants from entering the public water system.

What is Backflow?

Backflow is defined as the unwanted reversal of flow in a water distribution system. Due to changes in the hydraulic pressure in a water distribution system or a piping system inside a customer's premises, backflow occurs on a regular basis.

The polluting substance, usually a liquid, tends to enter the potable water supply if the net force acting upon the liquid acts in the direction of the water supply. Therefore, two factors are essential for backflow to occur. First, the normal direction of flow in the distribution system must be interrupted. Second, there must be a link or connection between the potable system and the source of contamination.

Backflow only becomes a serious problem when there are cross connections within the water distributions system.

Public Health Significance of Cross Connections

A cross connection is a physical link between a source of pollution or contamination with a potable water supply.

Public health specialists have long been aware of the threat to public health posed by cross connections. Education is the most important factor in cross connection control. No one would intentionally connect plumbing fixtures, equipment, etc. to their water supply if they knew it would contaminate their drinking water. But it happens thousands of times a day.

Various court decisions have held water suppliers responsible for the delivery of safe water to consumers. But the safety of our drinking water supply can be jeopardized at any location, at any time because of the frequency of plumbing defects and cross connections. Due to frequent changes in piping systems, an effective cross connection control program, including continued surveillance of the public water system, is necessary to prevent backflow incidents.

Components of an Effective Cross Connection Control Program

The first step in preventing backflow incidents is enacting local rules that grant the water supplier the authority to enforce the cross connection control program. For the water supplier to comply with the state backflow prevention regulation, the local rules should include the following provisions:

- A requirement for annual testing of assemblies and inspection of air-gaps.
- Authority to enter customer premises for purposes of inspection.
- Authority to terminate water service for failure to comply.

Rules of
Department of Natural Resources
Division 60—Public Drinking Water Program
Chapter 11—Backflow Prevention

Title **Page**

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10 CSR 60-11.030 Backflow Prevention Assembly Tester Certification 5

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 60—Public Drinking Water Program
Chapter 11—Backflow Prevention

10 CSR 60-11.010 Prevention of Backflow

PURPOSE: This rule establishes requirements for protection of public water systems from introduction of contaminants by backflow.

(1) Applicability, Exemptions and Compliance Dates.

(A) Applicability. This rule applies to all community water systems.

(B) Exemptions.

1. This rule does not apply to customer facilities used solely for residential purposes unless a cross-connection is specifically identified or the rule indicates otherwise.

2. The department may issue an exemption from the requirements of paragraphs (3)(A)1. and (3)(B)1. of this rule if the customer can demonstrate to the department, the local governmental authority (if one exists) and the supplier of water that the activities taking place at the customer's facility and the materials used in connection with these activities or stored on the premises cannot endanger the health of customers or degrade the water quality of the public water system should backflow occur, or that any potential risk posed by these materials or activities is isolated from the public water system. Those customers granted an exemption in accordance with this paragraph shall report to the supplier of water any proposed change in process, plumbing or materials used or stored at the exempted facility at least fourteen (14) days prior to making the change.

3. Any exemption granted under paragraph (1)(B)2. of this rule shall be void if the supplier of water, local governmental authority (if one exists) or the department determines that the customer facility has become an actual or potential backflow hazard, or if the customer fails to provide notice at least fourteen (14) days prior to making any change in process, plumbing or materials used or stored at the facility.

(2) Cross-Connections. No customer shall cause or allow the construction or maintenance of an unprotected cross-connection.

(3) Backflow Control by Containment.

(A) Class I Backflow Hazards.

1. A Class I backflow hazard presents an actual or potential health hazard to customers of the public water system should backflow occur. The customer or the customer's authorized representative shall construct a department-approved air-gap separation or install a reduced pressure principle backflow prevention assembly on the customer service line, in accordance with section (4) of this rule, when—

A. The supplier of water or local governmental agency (if one exists) requires protection from an actual or potential Class I backflow hazard at any facility;

B. Modification is made to the customer water system at an existing facility which is designated an actual or potential backflow hazard in paragraph (3)(A)2. of this rule. If an addition or modification requiring a separate customer service line is made to an existing facility, the new service line as well as the existing customer service line shall be equipped with department-approved backflow prevention assemblies;

C. A new customer service line connection is made to a facility listed in paragraph (3)(A)2. of this rule; or

D. A backflow incident occurs which introduces a contaminant into the public or customer water system which may create a health hazard.

2. Following is a list, not all inclusive, of actual or potential Class I backflow hazards:

A. Aircraft and missile manufacturing plants;

B. Automotive plants including, but not limited to, those plants which manufacture motorcycles, automobiles, trucks, recreational vehicles and construction and agricultural equipment;

C. Potable water dispensing stations which are served by a public water system;

D. Beverage bottling plants including, but not limited to, dairies, soft drink bottlers, and breweries;

E. Canneries, packing houses and reduction plants;

F. Car washes;

G. Chemical, biological and radiological laboratories including, but not limited to, those in high schools, trade schools, colleges, universities and research institutions;

H. Hospitals, clinics, medical buildings, autopsy facilities, morgues, mortuaries, veterinary facilities, dental clinics, and other medical facilities;

I. Metal or plastic manufacturing, fabrication, cleaning, plating or processing facilities;

J. Plants manufacturing paper and paper products;

K. Plants manufacturing, refining, compounding or processing fertilizer, film, herbicides, natural or synthetic rubber, pesticides, petroleum or petroleum products, pharmaceuticals, radiological materials or any chemical which would be a contaminant to the public water system;

L. Commercial facilities that use herbicides, pesticides, fertilizers or any chemical which would be a contaminant to the public water system;

M. Plants processing, blending or refining animal, vegetable or mineral oils;

N. Commercial laundries and dye works;

O. Sewage, storm water and industrial waste treatment plants and pumping stations;

P. Waterfront facilities including piers, docks, marinas and shipyards;

Q. Industrial facilities which recycle water;

R. Restricted or classified facilities or other facilities closed to the supplier of water or the department;

S. Fire sprinkler systems using any chemical additives;

T. Auxiliary water systems, including but not limited to alternative water sources;

U. Irrigation systems with facilities for injection of pesticides, herbicides or other chemicals or with provisions for creating back pressure. The backflow assembly may be installed between the customer service line and the irrigation system;

V. Portable tanks for transporting water taken from a public water system;

W. Facilities which have pumped or repressurized cooling or heating systems that are served by a public water system; and

X. Facilities which contain any boiler system and are served by a public water system. The backflow assembly may be installed on the water service line to the boiler.

(B) Class II Backflow Hazards.

1. A Class II backflow hazard threatens to degrade the water quality of the public water system should backflow occur. The customer or the customer's authorized representative shall install, as minimum protection for Class II backflow hazards, a department-approved double check valve assembly on the customer service line in accordance with section (5) of this rule when—

A. The supplier of water or local governmental agency (if one exists) requires protection from an actual or potential Class II backflow hazard at any facility;

B. Modification is made to the customer water system at an existing facility which is designated an actual or potential backflow hazard in paragraph (3)(B)2. If an addition or modification requiring a separate customer service line is made to an existing facility, the new service line, as well as the existing customer service line, shall be

equipped with department-approved backflow prevention assemblies;

C. A new customer service line connection is made to a new facility listed in paragraph (3)(B)2.; or

D. A backflow incident occurs in any situation described in paragraph (3)(B)2. or subsection (3)(C).

2. Following is a list, not all inclusive, of actual or potential Class II backflow hazards:

A. Tanks to store water from the public water system for fire fighting only, unless the tanks meet the requirements of the department for construction to maintain bacteriological quality of the water;

B. Fire sprinkler systems not using chemical additives. This only applies to new fire sprinkler systems or fire sprinkler systems scheduled for modifications;

C. Irrigation systems without facilities for injection of pesticides, herbicides or other chemicals. The backflow assembly may be installed between the customer service line and the irrigation system; and

D. Cross-connections that could permit introduction of contaminants into the public or customer water system and create a nuisance, be aesthetically objectionable or cause minor damage to the public water system or its appurtenances.

(C) Customer facilities not designated a backflow hazard by subsection (3)(A) or (B) may be designated a Class I or Class II backflow hazard by written notification from the supplier of water or the department to the customer. The notice shall specify the nature of the customer activity which necessitates designation of the facility as a backflow hazard, the type of backflow protection required and the date by which the customer shall install or construct this assembly on the customer service line to the facility.

(4) Department-Approved Backflow Prevention Assemblies.

(A) The department shall maintain a current list of approved backflow prevention assemblies and shall make this list available to the public upon request.

(B) The discharge pipe of an approved air-gap shall terminate a minimum of two (2) pipe diameters of the discharge pipe above the flood level rim of the receiving vessel; in no case shall the distance be less than one inch (1").

(C) Only those models of double check valve assemblies and reduced pressure principle backflow prevention assemblies which are approved by the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California and are on the approved list maintained by the department are acceptable.

(5) Standards of Construction and Installation.

(A) Reduced pressure principle backflow prevention assemblies shall be installed with no plug or additional piping affixed to the pressure differential relief valve port (except for specifically-designed funnel apparatus available from the manufacturer) and with the pressure differential relief valve port a minimum of twelve inches (12") above floor level. Additionally, the assembly shall be installed at a location where any leakage from the pressure differential relief valve port will be noticed, that allows easy access to the assembly for maintenance and testing, and that will not subject the assembly to flooding, excessive heat or freezing.

(B) All double check valve assemblies shall be installed at a location that allows easy access to the assembly for maintenance and testing and that will not subject the assembly to excessive heat or freezing.

(C) Backflow prevention assemblies shall be installed on the customer water system as close as possible to the point of service connection and prior to any other connection or branch line. If it is not possible to install the backflow prevention assembly as described, then installation shall be at the approval of the department.

(D) No bypass piping shall be allowed around a backflow prevention assembly unless the bypass is equipped with the same degree of backflow prevention protection.

(6) Backflow Prevention Assembly Testing and Inspection.

(A) All backflow prevention assemblies shall be inspected and tested by testers certified in accordance with the requirements and procedures in 10 CSR 60-11.030.

(B) Air-gaps shall be inspected each year by a date which is no later than thirty (30) days past the anniversary date established by the supplier of water to ensure that they continue to meet the requirements of subsection (4)(A).

(C) Reduced pressure principle backflow prevention assemblies shall be tested by a certified backflow prevention assembly tester each year by a date which is no later than thirty (30) days past the anniversary date established by the supplier of water to ensure that—

1. The pressure differential relief valve operates to maintain the zone between the two (2) check valves at least two pounds per square inch (2.0 psi) less than the supply pressure;

2. The #2 check valve is leak tight against reverse flow under all pressure differentials; and

3. The static pressure drop across the #1 check valve is at least three pounds per square inch (3.0 psi) greater than the pressure differential between the supply pressure and the pressure in the zone required to open the pressure differential relief valve.

(D) Double check valve assemblies shall be tested each year by a certified backflow prevention assembly tester by a date which is no later than thirty (30) days past the anniversary date established by the supplier of water to ensure that both the #1 and #2 check valves maintain at least one pound per square inch (1.0 psi) differential in the direction of flow and are leak tight against reverse flow under all pressure differentials.

(E) All certified backflow prevention assembly testers shall report to the appropriate governmental authority (if one exists), the supplier of water, the customer, and, if requested, the department the results of inspections or tests conducted in compliance with this section (6). Reports of tests shall contain the signature of the certified backflow prevention assembly tester attesting to the compliance (or noncompliance) of the assembly with established operational requirements. Routine reports shall be submitted within thirty (30) days after making the inspection or test. Falsification of testing or inspection information shall be grounds for removing the tester from the list of testers authorized to operate in Missouri.

(7) Customer Responsibilities.

(A) The customer shall furnish, install and maintain in working order at all times any backflow prevention assembly required by this rule.

(B) To ensure that each backflow prevention assembly required by this rule is in working order, the customer shall have each assembly inspected and tested by a certified backflow prevention assembly tester at the time of construction or installation and at the frequency specified in section (6).

(C) The customer shall permit access to the premises by the certified backflow prevention assembly tester, supplier of water and department representatives, at reasonable times and upon presentation of identification, for inspection of the customer water system or testing of backflow prevention assemblies installed in accordance with this rule.

(8) Responsibilities of the Supplier of Water.

(A) Because backflow may cause a health hazard through transmission of contaminants via the public water system, the supplier of

water shall remove the water meter or otherwise sever the public water system from the customer service line serving a facility when the supplier of water—

1. Has knowledge that the customer is causing or maintaining an unprotected cross-connection;

2. Has knowledge that the customer is failing or refusing to proceed without delay to correct any violation of the provisions of this rule after having been notified to do so;

3. Is so ordered by the appropriate local governmental authority (if one exists); or

4. Is so ordered by the department because of violation of any provision of this rule by the customer.

(B) The supplier of water shall retain records of the reports of inspections, tests and repairs on backflow prevention assemblies for a period of five (5) years.

(C) The supplier of water may develop, for use within his/her service area, written procedures to implement the provisions of this rule. In developing the procedures, the supplier of water will be permitted to take into account existing backflow prevention programs and incorporate ordinances, regulations or requirements of appropriate local governmental authorities. However, the written procedures shall be no less stringent than the provisions of this rule. The department will prepare and make available on request the appropriate forms needed to assist the supplier of water in implementing the provisions of this rule. The supplier of water may submit the procedures to the department for approval.

(D) The supplier of water shall record the date of the initial inspection or test of backflow prevention assemblies required under subsections (3)(A) and (3)(B) and shall require that an annual inspection or test report be submitted by a certified backflow prevention assembly tester. The supplier of water shall establish an annual anniversary date for these inspection or test reports. If these reports are not received by the supplier of water on or before sixty (60) days following this anniversary date, the supplier of water promptly shall notify the customer, the local governmental agency (if one exists) and the department.

(E) The supplier of water shall notify the department within forty-eight (48) hours whenever a cross-connection problem has occurred which resulted in contamination of the public water system.

AUTHORITY: section 640.100, RSMo (Cum. Supp. 1996). Original rule filed May 4, 1979, effective Sept. 14, 1979. Rescinded and readopted: Filed July 11, 1986, effective Jan. 1, 1987. Amended: Filed Dec. 4, 1990, effective July 8, 1991. Amended: Filed Jan. 2, 1997, effective Dec. 29, 1997.*

**Original authority 1939, amended 1978, 1981, 1982, 1988, 1989, 1992, 1993, 1995, 1996.*

10 CSR 60-11.030 Backflow Prevention Assembly Tester Certification

PURPOSE: This rule establishes certification and recertification requirements for backflow prevention assembly tester training programs.

(1) Applicability. This rule applies to all persons seeking certification or recertification as backflow prevention assembly testers. A certified backflow prevention assembly tester shall inspect, test and report on backflow prevention assemblies in accordance with applicable requirements in 10 CSR 60-11.010.

(2) Certification Requirements.

(A) Any person seeking to be a certified backflow prevention assembly tester shall—

1. Satisfactorily complete written and performance (hands on) examinations (including questions specific to Missouri backflow prevention rules) provided by the American Backflow Prevention Association (ABPA) Tester Certification Program or the American Society of Sanitary Engineering (ASSE); and

2. Ensure that ABPA or ASSE notifies the department that the tester has passed the examinations. The department shall not be held liable for any failure of ABPA or ASSE to notify the department that a person has passed the written and performance examinations.

(B) Certification shall be valid for three (3) years. Certification may be renewed in accordance with section (4) of this rule.

(C) Submittal of false information shall be grounds for denying or revoking certification.

(3) Examination Schedule. The department shall, in consultation with training providers, prepare an annual schedule of dates and locations of backflow prevention assembly tester examinations. The department shall make this schedule available to backflow prevention assembly tester training providers and to any interested person upon request. (Training providers may offer additional examinations, at their discretion.)

(4) Recertification Requirements.

(A) Any certified tester seeking to be recertified shall—

1. Satisfactorily complete ABPA's or ASSE's recertification requirements, including examination questions on Missouri backflow prevention rules; and

2. Ensure that ABPA or ASSE notifies the department that the tester has satisfactorily completed the requirements. The department shall not be held liable for any failure of ABPA or ASSE to notify the department that a tester has satisfactorily completed the recertification requirements.

(B) Recertification shall be valid for three (3) years.

(C) Submittal of false information shall be grounds for denying or revoking recertification.

(D) Any certified tester who fails the ABPA or ASSE examination within three (3) years of the effective date of this rule shall, upon request and submission of proof having taken and failed the examination, be granted a one (1)-time one hundred twenty (120)-day extension of his/her certification. The tester shall submit, or ensure that the instructor or testing organization submits, to the department a copy of the course roster and test results or other documentation which in the opinion of the department are equivalent.

(5) Reciprocity. Any backflow prevention assembly tester listed with ABPA or ASSE may be certified by the department upon notification from ABPA or ASSE that the tester has satisfactorily completed an examination on Missouri backflow prevention rules.

AUTHORITY: section 640.100, RSMo (Cum. Supp. 1996). Original rule filed Jan. 2, 1997, effective Dec. 29, 1997.*

**Original authority 1939, amended 1978, 1981, 1982, 1988, 1989, 1992, 1993, 1945, 1996.*

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
PUBLIC DRINKING WATER BRANCH

BACKFLOW PREVENTION ASSEMBLY TEST DATA AND MAINTENANCE REPORT

CUSTOMER	CUSTOMER NUMBER	FILE NUMBER
MAILING ADDRESS		
SERVICE LOCATION		METER NUMBER

DATE OF TEST	TIME ☐ A.M. ☐ P.M.	SUPPLY PRESSURE _____ LBS.	AIR GAP (2 X SUPPLY DIAM.) SUPPLY _____ IN. GAP _____ IN.	☐ PASS ☐ FAIL
TYPE OF ASSEMBLY	MANUFACTURER	MODEL	SIZE	SERIAL NUMBER
HEIGHT OFF FLOOR _____ (IN./FT.)	PROTECTION FROM: FREEZING ☐ YES ☐ NO	FLOODING ☐ YES ☐ NO	COMMENTS:	NEW INSTALLATION ☐ YES ☐ NO

INITIAL TEST	Passed	Failed
REDUCED PRESSURE PRINCIPLE ASSEMBLY:	☐	☐
RELIEF VALVE OPENED AT _____ *PSID (2 PSID or more)	☐	☐
2ND CHECK held backpressure	☐	☐
NO. 2 SHUTOFF VALVE leak tight	☐	☐
1ST CHECK held in direction of flow _____ *PSID (5 PSID or more)	☐	☐
DIFFERENCE (1st check - relief) _____ PSID (3 PSID or more)	☐	☐

NOTE: Failure of any of the above items, requires repair.

FINAL TEST AFTER REPAIR	Passed	Failed
REDUCED PRESSURE PRINCIPLE ASSEMBLY:	☐	☐
RELIEF VALVE OPENED AT _____ PSID (2 PSID or more)	☐	☐
2ND CHECK held backpressure	☐	☐
NO. 2 SHUTOFF VALVE leak tight	☐	☐
1ST CHECK held in direction of flow _____ PSID (5 PSID or more)	☐	☐
DIFFERENCE (1st check - relief) _____ PSID (3 PSID or more)	☐	☐

*Pounds per Square Inch Differential

INITIAL TEST	Passed	Failed
DOUBLE CHECK VALVE ASSEMBLY:	☐	☐
1ST CHECK held in direction of flow _____ PSID (1 PSID or more)	☐	☐
2ND CHECK held in direction of flow _____ PSID (1 PSID or more)	☐	☐

NOTE: Failure of any of the above items, requires repair.

FINAL TEST AFTER REPAIR	Passed	Failed
DOUBLE CHECK VALVE ASSEMBLY:	☐	☐
1ST CHECK held in direction of flow _____ PSID (1 PSID or more)	☐	☐
2ND CHECK held in direction of flow _____ PSID (1 PSID or more)	☐	☐

APPLICATION:

☐ COMMERCIAL
☐ FIRE LINE
☐ IRRIGATION
☐ OTHER (EXPLAIN)

COMMENTS

THE ABOVE REPORT IS CERTIFIED TO BE TRUE, ACCURATE AND COMPLETE

TESTED BY (PRINT) (SIGNATURE)		REPAIRED BY (PRINT) (SIGNATURE)
COMPANY		FINAL TEST BY (PRINT) (SIGNATURE)
CERTIFICATION NUMBER AND EXPIRATION DATE	OWNER OR OWNER'S REPRESENTATIVE	DATE

Missouri state regulation 10 CSR 60-11.010(6)(E) requires testers to report results of tests and inspections to the customer and the water supplier.

Missouri Department of Natural Resources

March 2009
(supersedes all prior lists)

MISSOURI DEPARTMENT OF NATURAL RESOURCES
APPROVED BACKFLOW PREVENTION ASSEMBLIES

All backflow prevention assemblies meeting the requirements of AWWA specification C511-97 for reduced pressure principle and C510-97 for double check valves are considered "approved assemblies". The department approves only Reduced Pressure Principle Backflow Assemblies and the Double Check Valve Assemblies that are approved by the Foundation for Cross Connection Control and Hydraulic Research (FCCCHR) of the University of Southern California (USC).

The following is a running list of assemblies (updated as changes are made by the USC FCCCHR) that are currently approved by the department. Call the Deana Cash or Joyce Bare at (573) 526-6925 if there is not an assembly on this list that you may question. USC FCCCHR may have approved recently or one may have been on the list previously not incorporated into this list.

Assemblies not appearing on this list but which had prior approval are acceptable as long as they test properly.

Unless otherwise specified by the manufacturer, all assemblies are to be installed on cold water applications - below 110° F. Also, all double check valve assemblies, reduced pressure principle assemblies, double check detector assemblies, and reduced pressure principle detector assemblies are approved for HORIZONTAL ORIENTATION ONLY, unless specifically noted.

Use of spare parts other than those of the original manufacturer invalidates the approval.

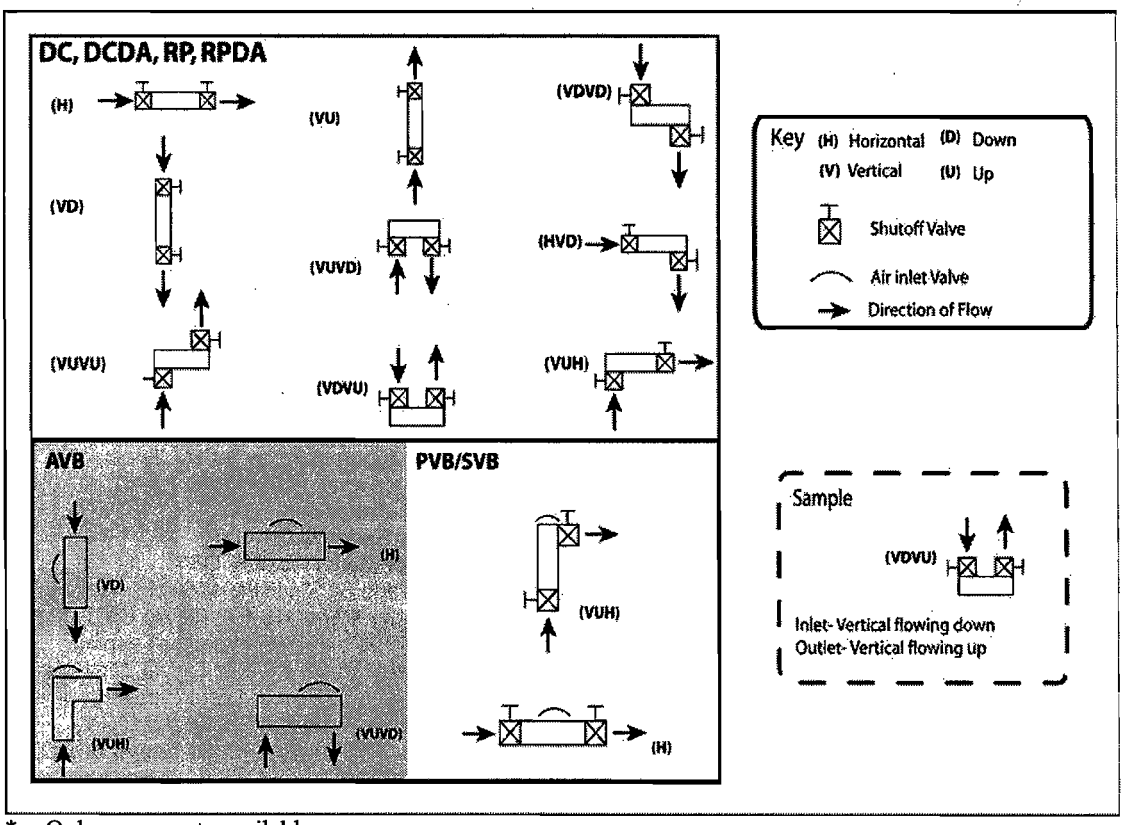
Shut-off Valves

The backflow prevention assemblies shown on this list have been evaluated with a specific set of shut-off valves as an integral part of the assembly. The specific shut-off valves are coded by a parenthetic code shown below the assemblies' model designation. This coding of shut-off valves is defined below. Other shut-off valves having similar performance characteristics, as flow tested on the assembly, to permit the assembly to meet the Specifications are shown immediately after the original evaluation shut-off valves. The use of any other shut-off valve on a specific assembly invalidates the Approval. Assemblies listed as "only spare parts available," are designated by the '*' and some may not include the shut-off valve designation.

Identification of shut-off valves:

(a) American Figure 1 - QT
(b) American Figure 17 – NRS RW
(c) American Figure 370 – OSY RW
(d) Apollo Series 7B - QT
(e) AVK Series 25 - NRS
(f) AVK Series 23 – OSY (Nibco F607RW OSY)
(g) Clow R/W Model 2640 (FxF) – NRS
(Formerly Clow R/W F6102 – NRS)
(h) Clow R/W Model 2640 (FxF) – OSY
(Formerly Clow R/W F6136 – OSY)
(i) Fortune Figure 620-QT
(Formerly Figure 601)
private labeled as:
Ames, Buckner, Febco, Flomatic, Hersey, Wilkins
(j) Kennedy Ken Seal I-NRS
(k) Kennedy Ken Seal I - OSY
(l) Kennedy Model KS-FW Figure 8561 (FxF) – NRS (2 ½"-3")
Kennedy Model KS'RW Figure 7561 (FxF) – NRS (4"-10")
(Formerly Kennedy Ken Seal II – NRS)
(m) Kennedy Model KS-FW Figure 8068 (FxF) – OSY (2 ½ "-3")
Kennedy Model KS-RW Figure 7068 (FxF) – OSY (4" – 10")
(Formerly Kennedy Ken Seal II – OSY)
(n) Lee Brass - QT
(o) Watts 405 - RW
(p) Watts 408 -OSY
(q) Mueller R/W HP NRS
(r) Mueller R/W HP OSY
(s) Toro/Orion Integral Ball Valve - QT
(t) American Flow Control (Waterous)
Series 500 – NRS
(u) American Flow Control (Waterous)
Series 500 - OSY
(v) Watts Figure FBV (& FVB-E) – QT
[Ames Figure FBV (FVB-E)-QT]
(w) Watts G4000FDA - QT
(x) Watts Series 6080 (& 6080 - E) - QT
(y) Matco-Norca 10RW (NRS)
(z) Matco-Norca 105U (OSY)
(aa) American Flow Control Series 2500-NRS
(bb) American Flow Control Series 2500-OSY
(cc) M&H MODEL 4067-02 (NRS)
(dd) M&H MODEL 4068-02 (OSY)
(ee) Stockham Model G-610 (OSY)
(ff) Febco Series 620-QT
(gg) Fortune Figure 620U-QT
(hh) Watts Figure S-FBV (S-FBV-E) - QT
(ii) Mueller Model A2360-NRS
(jj) Febco Series 621 - QT
(kk) Febco Series 620U - QT
(ll) Mueller Model R2360 - OSY
(mm) Conbraco Series IBVE-125-QT
(nn) Kennedy Model KS-FW Figure 8701 (FxF) – NRS (2 ½ "-3") Post Indicator/Tapping
Kennedy Model KS-RW Figure 7701 (FxF) – NRS (4"-10") Post Indicator/Tapping
(Formerly Kennedy Ken Seal II PI/TV)
(oo) Nigbo Ball Valves (Febco Series 622-QT & Wilkins Series 855-QT)
(pp) Clow R/W Model 2639 (GxF)–NRS (21/2"-3")
Clow R/W Model 2638 (GxF) – NRS (4"-10")
(Formerly Clow Series F6015-NRS)
(qq) Clow R/W Model 2639 (GxF)–OSY (21/2"-3")
Clow R/W Model 2638 (GxF) – OSY (4"-10")

(Formerly Clow Series F6138-OSY)
(rr) Apollo Series 7B-308-01 (& 7B-308-31)
(ss) Clow R/W Model 2639 (GxG)–NRS(21/2"-3")
Clow R/W Model 2638 (GxFG)–NRS (4"-10")
(Formerly Clow Series F6104-NRS)
(tt) Clow R/W Model 2639 (GxG)–OSY (21/2"-3")
Clow R/W Model 2638 (GxFG) – OSY (4"-10")
(Formerly Clow Series F6137-OSY)
(uu) Apollo Series 7H-QT
(vv) Clow R/W Model 2640 (FxF) – OSY PI/TV
(Formerly Clow R/W F6136-OSY PI/TV)
(ww) Clow R/W Model 2639 (GxF) – OSY (2 ½" – 3") PI/TV
Clow R/W Model 2640 (GxF) – OSY (4"-10") PI/TV
(Formerly Clow R/W F6138-OSY PI/TV)
(xx) FEBCO Series 622U QT
(yy) Victaulic Series 702 (butterfly valves)
(zz) Kennedy Model KS-RW Figure 7092ABF (FxG) - OSY
(Formerly Kennedy Series 7092ABF – OSY)
(aaa) Union Model GV12 (flange by groove)-OSY
(bbb) Enbee Model GV12 (flange by groove)-OSY
(ccc) Kennedy Model KS-RW Figure 7092 (FxG) - OSY
(Formerly Kennedy Series 7092 (GxF)-OSY)
(ddd) Kennedy Model KS-RW Figure 7592 (FxG) - NRS
(Formerly Kennedy Series 7592ABF-NRS)
(eee) Kennedy Model KS-RW Figure 7592PABF (FxG) –NRS PI/TV
(Formerly Kennedy Series 7592PABF-PI/TV)
(fff) Watts 409RW (FxF)-OSY
(ggg) Watts 409RW (FxG)-OSY
(hhh) Watts Figure LF-FBV-QT
(iii) Wilkins Series 34-350XL-QT
(jjj) Watts 409 RW 2" - OSY
(kkk) Kennedy Model KS-RW Figure 7093 (GxG) - OSY
(lll) Kennedy Model KS-RW Figure 7593 (GxG) - OSY
(mmm) Kennedy Model KS-RW Figure 7093ABF (GxG) - OSY
(nnn) Kennedy Model KS-RW Figure 7093ABF (GxG)-NRS
(ooo) Kennedy Model KS-RW Figure 7593PABF (GxG) – NRS Post Indicator



* = Only spare parts available

Model – Size (Shutoffs) [Orientation]

Ames

400B – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H or VD]
400B-A – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo. hhh) [vertical up inlet, vertical down outlet]
400B-Z – ¾", 1", 1 ¼", 1 ½", 2" (v v, hhh) [veritcal up inlet, vertical up outlet]
4000B – ½", ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
4000BM2 – 1" (v, x, oo, hhh) [H]
4000BM3 – ¾" (v, x, oo, hhh) [H]
4000CIV – 2 ½", 3", 8", 10" (o, g, h, l, m, p, t, u) [H]
4000CIV – 4", 6" (o, g, h, l, m, p, t, u, ee) [H]
4000RP – 4", 6", 8", 10" (t, e, f, g, h, l, m, o, p, u, cc, dd, fff, ggg) [H]
4000SS – 2 ½", 3", 4", 6" (t, e, f, g, h, l, m, o, p, u, cc, dd, fff, ggg) [H]
Colt 400 – 2 ½", 3", 4", 6", 8" (pp, qq, zz, aaa, bbb, ddd, eee, ggg, kkk, lll, mmm, nnn) [H]
Colt 400 – 6" (pp, qq, aaa, bbb, kkk, lll, mmm, nnn) [H]
Colt 400 – 8" (pp, qq, sss, ttt, aaa, bbb, kkk, lll, mmm, nnn) [H]
Colt 400BFG – 4" 6" (pp, ww, yy, zz, aaa, bbb, kkk, lll, mmm, nnn) [H]
Colt 400N – 2 ½" (pp, qq, yy, zz, aaa, bbb, kkk, lll, mmm, nnn) [vertical up inlet, vertical down outlet]
Colt 400N – 3", 4" (pp, qq, yy, zz, aaa, bbb, ddd, eee, ggg, kkk, lll, mmm, nnn) [vertical up inlet, vertical down outlet]
Colt 400Z – 2 ½", 3", 4" (pp, qq, yy, zz, aaa, bbb, ddd, eee, ggg, kkk, lll, mmm, nnn) [vertical up inlet, vertical up outlet]
Maxim 400 – 2 ½", 3" (pp, qq, zz, aaa, bbb, ddd, eee, ggg, kkk, lll, mmm, nnn) [H]
Maxim 400 – 4",(pp, qq, aaa, bbb, kkk, lll, mmm, nnn) [H]
Maxim 400 – 6" (pp, qq, ss, tt, aaa, bbb, kkk, lll, mmm, nnn) [H]

Reduced Pressure Principle Assemblies

Ames (Continued)

Maxim 400N – 2 ½", 3" (pp, qq, yy, zz, aaa, bbb, ddd, eee, ggg, kkk, lll, mmm, nnn) [vertical up inlet, vertical down outlet]
Maxim 400Z – 2 ½", 3" (pp, qq, yy, zz, aaa, bbb, ddd, eee, ggg, kkk, lll, mmm, nnn) [vertical up inlet, vertical up outlet]
U400B – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H or VD]
U400B-A – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [vertical up inlet, vertical down outlet]

Apollo/Conbraco

40-200-02 – 3" (t, b, e, l) [H]
40-200-03 – 3" (u, c, m) [H]
40-200-05 – 3" (mm) [H]
40-201-02/A2/T2 – ¼" (d) [H]
40-201-T2S – ¼" (uu) [H]
40-202-02/A2/T2 – 3/8" (d) [H]
40-202-T2S – 3/8" (u) [H]
40-203-02/A2/T2 – ½" (d) [H]
40-203-T2S – ½" (uu)
40-204-02/A2/T2/TC2 – ¾" (d) [H]
40-204-T2S – ¾" (uu) [H]
40-204-T2U/TCU – ¾" (d) [vertical up inlet, vertical down outlet]
40-204-T2Z – ¾" (d) [vertical up inlet, vertical up outlet]
40-205-02/T2/A2/TC2 – 1" (d) [H]
40-205-T2S – 1" (uu) [H]
40-205-T2U – 1" (d) [vertical up inlet, vertical down outlet]
40-205-T2Z – 1" (d) [vertical up inlet, vertical up outlet]
40-205-TCU – 1" (d" [vertical up inlet, vertical down outlet]
40-206-02/A2/T2 – 1 ¼" (d) [H]
40-206-T2U – 1 ¼" (d) [vertical up inlet, vertical down outlet]
40-206-T2Z – 1 ¼" (d) [vertical up inlet, vertical up outlet]
40-207-02/A2/T2 – 1 ½" (d) [H]
40-207-T2U – 1 ½" (d) [vertical up inlet, vertical down outlet]

Apollo/Conbraco (Continued)

40-207-T2Z – 1 ½" (d) [vertical up inlet, vertical up outlet]
40-208-02/A2/T2 – 2" (d) [H]
40-208-A4 – 2" (rr) [H]
40-208-T2U – 2" (d) [vertical up inlet, vertical down outlet]
40-208-T2Z – 2" (d) [vertical up inlet, vertical up outlet]
40-209-02 – 2 ½" (t, b, e, l) [H]
40-209-03 – 2 ½" (u, c, m) [H]
40-209-05 – 2 ½" (mm) [H]
40-20A-02 – 4" (t, b, e, l) [H]
40-20A-03 – 4" (u, c, m) [H]
40-20A-05 – 4" (mm) [H]
40-20C-02 – 6" (t, b, e, l) [H]
40-20C-03 – 6" (u, c, m) [H]
40-20C-05 – 6" (mm) [H]
40-20E-02 – 8" (t, b, e, l) [H]
40-20E-03 – 8" (u, c, m) [H]
40-20G-02 – 10" (t, b, e, l) [H]
40-20G-03 – 10" (u, c, m) [H]

APRI

RP 500 – ¾", 1" (i) [H]

Cla-Val

RP4 – 2 ½", 3", 4", 6", 8", 10" (g, h, q, r) [H] [vertical up inlet, vertical up outlet]

Conbraco (see Apollo/Conbraco above)

Febco

825Y – ¾", 1", 1 ¼", 1 ½" (i, ff, jj, oo) [H]
825Y – 2" (i, ff, oo) [H]
825YA or *YAR – ¾", 1", 1 ½" (i, ff, jj, oo) [H; horizontal inlet, vertical down outlet; vertical up inlet, horizontal outlet; vertical up inlet, vertical down outlet]
825YA or *YAR – 2" (i, ff, oo) [H; horizontal inlet, vertical down outlet; vertical up inlet, horizontal outlet; vertical up inlet, vertical down outlet]

Model – Size (Shutoffs) [Orientation]

Febco (Continued)

825YD – 2 ½", 3", 4", 6", 8", 10" (e, f, l, m, o, p, t, u, zz, fff, ggg) [H]
*825YR – ¾", 1", 1 ½" (i, ff, jj) [H]
*825YR – 2" (i, ff) [H]
860 – ½", 2" (ff, oo) [H]
860 – ¾", 1", 1 ¼", 1 ½" (ff, jj, oo) [H]
860- 2 ½", 3" (e, f, l, m, o, p, t, u, zz, ccc, fff, ggg) [H]
860 – 4", 6", 8" (e, f, l, m, o, p, t, u, nn, zz, ccc, fff, ggg) [H]
860U – ½", ¾", 1", 1 ¼", 1 ½", 2" (kk) [H]
867 – 2 ½" (o, g, h, l, m, p, t, u, y, ff) [H]
867 – 3" (o, g, h, l, m, p, t, u, y, ee, ff) [H]
*880 – 2 ½", 3", 4", 6", 8", 10" (e, f, l, m, o, p, t, u, zz, fff, ggg)
[vertical up inlet, vertical down outlet]
880V- 2 ½", 3", 4", 6", 8" 10" (e, f, l, m, o, p, t, u, nn, zz, ccc, fff, ggg)
[vertical up inlet, vertical down outlet; vertical up inlet, vertical up outlet]

Flomatic

RPZ – ¾", 1", 1 ½", 2" (i)
RPZ – 2 ½", 3", 4", 6", 8" (g, h, j, k, l, m, y, z, cc, dd) [H]
RPZE – ¾", 1", 1 ½", 2" (i) [H]
RPZII/EII – ½", ¾" (i) [H]

Watts

009 – 2 ½" (o, g, h, l, m, p, t, u, y, fff, ggg) [H]
009 – 3" (o, g, h, l, m p, t, u, y, ee, fff, ggg) [H]
* 009M1QT – 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
* 009M1PCQT – 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
009M2QT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
009M2PCQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
009M3QT – ¾" (v, x, oo, hhh) [H]
009PCQT – ½", ¾" (v, x, oo, hhh) [H]
* 009PCQT – 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
009QT – ¼", 3/8", ½", ¾" (v, x, oo, hhh) [H]
* 009QT – 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]

Reduced Pressure Principle Assemblies

Watts (Continued)

* 009SSM1QT – 2" (v, x) [H]
* 009SSM1PCQT – 2" (v, x) [H]
* 009SSPCQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x) [H]
* 009SSQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x) [H]
909 – 3", 4", 6" (o, g, h, l, m, p, t, u, y, ee, fff, ggg) [H]
* 909 – 8", 10" [H]
909BB – 2 ½", 3" (o, g, h, l, m, p, t, u, y, fff, ggg) [H]
909HWQT – ¾", 1" (v, x, oo, hhh) [H]
909HWM1QT – 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
909M1 – 8", 10" (o, g, h, l, m, p, t, u, y, fff, ggg) [H]
909M1QT – 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
909M1QTFDA – 8", 10" (w) [H]
909PCHWM1QT – 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
909PCHWQT – ¾", 1" (v, x, oo, hhh) [H]
909PCM1QT – 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
909PCQT – ¾", 1" (v, x) [H or vertical up]
909QT – ¾", 1" (v, x) [H or vertical up]
909QTFDA – 2 ½" (o, g, h, l, m, p, t, u, y, fff, ggg) [H]
909QTFDA – 2 ½", 3", 4", 6" (w) H]
919AQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [vertical up inlet, vertical down outlet]
919QT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H or vertical down]
919ZQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [vertical up inlet, vertical up outlet]
957 – 2 ½", 3", 4" (pp, qq, zz, aaa, bbb, ddd, eee, fff, ggg, kkk, lll, mmm, nnn) [H]
957 – 6" (pp, qq, aaa, bbb, ggg, kkk, lll, mmm, nnn) [H]
957 – 8" (pp, qq, ss, tt, aaa, bbb, kkk, lll, mmm, nnn) [H]
957BFG- 4", 6" (yy) [H]
957N – 2 ½", 3", 4" (pp, qq, yy, zz, aaa, bbb, ddd,eee, ggg, kkk, lll, mmm, nnn) [vertical up inlet, vertical down outlet]
957Z – 2 ½", 3", 4" (pp, qq, yy, zz, aaa, bbb, ddd, eee, ggg, kkk, lll, mmm, nnn) [vertical up inlet, vertical up outlet]

Watts (Continued)

967 – 2 ½", 3" (pp, qq, zz, aaa, bbb, ddd, eee, fff, ggg, kkk, lll, mmm, nnn) [H]
967 – 4" (pp, qq, aaa, bbb, ggg, kkk, lll, mmm, nnn) [H]
967 – 6" (pp, qq, ss, tt, aaa, bbb, kkk, lll, mmm, nnn) [H]
967N – 2 ½", (pp, qq, yy, zz, aaa, bbb, ddd, eee, ggg, kkk, lll, mmm, nnn)
[vertical up inlet, vertical down outlet]
967N – 3" (pp, qq, zz, aaa, bbb, ddd, eee, fff, ggg, kkk, lll, mmm, nnn)
[vertical up inlet, vertical down outlet]
967Z – 2 ½"(pp, qq, yy, zz, aaa, bbb, ddd, eee, ggg, kkk, lll, mmm, nnn)
[vertical up inlet, vertical up outlet]
967Z – 3"(pp, qq, zz, aaa, bbb, ddd, eee, ggg, kkk, lll, mmm, nnn)
[vertical up inlet, vertical up outlet]
* 990 – 4", 8" (o, g, h, p, t, u, y) [H]
* 990QTFDA – 4", 8" (w) [H]
* 992 – 4", 10" (o) [H]
994 – 2 ½", 3", 4", 6" (t, e, f, g, h, l, m, o, p, u, cc, dd, fff, ggg) [H]
*995QT – ½", ¾", 1", 1 ¼", 1 ½" (integral shut-off) [H]
FAE909QT – 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
FAE909HWQT – 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
LF007QT – ½" [H]
LF007M3QT – ¾" [H]
LF009QT – ½" (hhh) [H]
LF009M2QT – 1", 1 ¼", 1 ½", 2" (hhh) [H]
LF009M3QT – ¾" (hhh) [H]
LF919AQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [vertical up inlet, vertical down outlet]
LF919QT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H or vertical down]
LF919ZQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H; vertical up inlet, vertical up outlet]
LFU919AQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [vertical up inlet, vertical down outlet]

Model – Size (Shutoffs) [Orientation]

Watts (Continued)

LFU919QT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H or vertical down]
SS009M3QT – ¼", 3/8", ½", ¾" (hh) [H]
SS009QT – 1" (hh) [H]
U009APCQT – ¾" (v, x, oo, hhh) [vertical up inlet, vertical down outlet; vertical down inlet, vertical up outlet; vertical up inlet, vertical up outlet; vertical down inlet, vertical down outlet]
* U009APCQT – 1" (v, x, oo, hhh) [vertical up inlet, vertical down outlet; vertical down inlet, vertical up outlet; vertical up inlet, vertical up outlet; vertical down inlet, vertical down outlet]
U009AQT – ¾" (v, x, oo, hhh) [vertical up inlet, vertical down outlet; vertical down inlet, vertical up outlet; vertical up inlet, vertical up outlet; vertical down inlet, vertical down outlet]
* U009AQT – 1" (v, x, oo, hhh)[vertical up inlet, vertical down outlet; vertical down inlet, vertical up outlet; vertical up inlet, vertical up outlet; vertical down inlet, vertical down outlet]
* U009M1APCQT – 1 ½", 2" (v, x, oo, hhh) [vertical up inlet, vertical down outlet; vertical down inlet, vertical up outlet; vertical up inlet, vertical up outlet; vertical down inlet, vertical down outlet]
* U009M1AQT – 1 ½", 2" (v, x, oo, hhh) [vertical up inlet, vertical down outlet; vertical down inlet, vertical up outlet; vertical up inlet, vertical up outlet; vertical down inlet, vertical down outlet]
U009M1PCQT – 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
U009M1QT – 1 ¼" (v, x, oo, hhh) [H]
* U009M1QT – 1 ½", 2" (v, x, oo, hhh) [H]
U009M2APCQT – 1", 1 ½", 2" (v, x, oo, hhh) [vertical up inlet, vertical down outlet; vertical down inlet, vertical up outlet; vertical up inlet, vertical up outlet; vertical down inlet, vertical down outlet]

Reduced Pressure Principle Assemblies

Watts (Continued)

U009M2AQT – 1", 1 ½", 2" (v, x, oo, hhh) [vertical up inlet, vertical down outlet; vertical down inlet, vertical up outlet; vertical up inlet, vertical up outlet; vertical down inlet, vertical down outlet]
U009M2PCQT – 1", 1 ½", 2" (v, x, oo, hhh) [H]
U009M2QT – 3/4", 1", 1 ½", 2" (v, x, oo, hhh) [H]
U009PCQT – ½", ¾" (v, x, oo, hhh) [H]
* U009PCQT – 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
U009QT – ½" (v, x, oo, hhh) [H]
* U009QT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H]
* U009SSPCQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x) [H]
* U009SSQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x) [H]
U909QT – ¾", 1" (v, x, oo, hhh) [H or vertical up]
U909HWQT – ¾", 1" (v, x, oo, hhh) [H]
U919AQT – ¾", 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [vertical up inlet, vertical down outlet]
U919QT – 1", 1 ¼", 1 ½", 2" (v, x, oo, hhh) [H or vertical down]

Wilkins

375 – ¾", 1" (integral shutoff) [H]
375 – 2 ½", 3" (g, e, f, h, l, m, t, u, y, z, pp, qq, zz, ddd) [H]
375 – 4", 6", 8", 10" (g, e, f, h, l, m, t, u, y, z, pp, qq, vv, ww, zz, ddd, eee) [H]
375A – 2 ½", 3" (pp, ss, tt, qq, yy, zz, ddd)[H]
375A – 4", 6" (pp, qq, ss, tt, ww, yy, zz, ddd, eee, sss, uuu, w, xxx,yyy,aaaa) [H]
375A – 8" (pp, qq, ss, tt, ww, yy, zz, ddd, eee) [H
375A – 10" (pp, qq, ss, tt, ww, zz,, ddd, eee) [H]
375MS – 2½", 3" (g, e, f, h, l, m, t, u, y, z, pp, qq, zz, ddd) [H]
375MS – 4", 6", 8", 10" (g, e, f, h, l, m, t, u, y, z, pp, qq, vv, ww, zz, ddd, eee) [H]
475 – 2 ½", 3" (g, e, f, h, l, m, t, u, y, z, pp, qq, zz, ddd) [vertical up inlet, vertical down outlet]

Wilkins (Continued)

475 – 4", 6", 8" (pp, qq, ss, tt, ww, yy, zz, ddd, eee) [vertical up inlet, vertical down outlet]
475 – 10" (pp, qq, ss, tt, ww, zz, ddd, eee) [vertical up inlet, vertical down outlet]
475MS – 2 ½", 3" (g, e, f, h, l, m, t, u, y, z, pp, qq, zz, ddd) [vertical up inlet, vertical down outlet]
475MS – 4", 6", 8" (pp, qq, ss, tt, ww, yy, zz, ddd, eee) [vertical up inlet, vertical down outlet]
475MS –10" (pp, qq, ss, tt, ww, zz, ddd, eee) [H]
475V – 2 ½", 3" (g, e, f, h, l, m, t, u, y, z, pp, qq, zz, ddd) [vertical up inlet, vertical up outlet]
475V – 4", 6", 8", 10" (pp, qq, ss, tt, ww, yy, zz, ddd, eee) [vertical up inlet, vertical up outlet]
475VMS – 2 ½", 3" (g, e, f, h, l, m, t, u, y, z, pp, qq, zz, ddd) [vertical up inlet, vertical up outlet]
475VMS – 4", 6", 8" (pp, qq, ss, tt, ww, yy, zz, ddd, eee) [vertical up inlet, vertical up outlet]
475VMS – 10" (pp, qq, ss, tt, ww, zz, ddd, eee) [H]
* 575 – ¾", 1" [H]
* 575 - 2 ½", 3", 4", 6" (g, e, t, y) [H]
* 575A – ¾", 1" (i) [H]
* 575M8 – 8" (g, e, t, y) [H]
* 575M10 – 10" (g, e, t, y) [H]
* 575 (MOD-III) – 1 ¼", 1 ½", 2" (i) [H]
*975 – ¾", 1", 1 ¼", 1 ½", 2" (i) [H]
*975 – 2 ½", 3", 8", 10" (g, e, f, h, t, u, y, z) [H]
*975 – 4", 6" (g, e, f, h, t, u, y, z, pp) [H]
*975A – ¾", 1", 1 ¼", 1 ½", 2" (i) [H]
975BMS – 2 ½", 3"(g, e, f, h, t, u, y, z, sss, ttt, www, yyy, zzz) [H]
*975BMS - 4", 6" "(g, e, f, h, t, u, y, z, sss, ttt, www, yyy, zzz) [H]
975BMS - 8", 10" (g, e, f, h, t, u, y, z) [H]
975MS – 2 ½", 3", 4", 6", 8", 10" (g, e, f, h, t, u, y, z) [H]

Model – Size (Shutoffs) [Orientation]

Reduced Pressure Principle Assemblies

Wilkins (Continued)

975XL – ¼', 3/8", ½" (i) [H]
975XL – ¾", 1", 1 ½", 2" (i, oo) [H]
975XL – 1 ¼" (i, oo, gg) [H]
975XLBMS – ¾", 1", 1 ¼", 1 ½", 2" (i, oo) [H]
975XLD – ¾" (i, oo) [H]
975XLMS – ¾", 1", 1 ¼", 1 ½", 2" (i, oo) [H]
975XLSE – ¾", 1", 1 ¼", 1 ½", 2" (i, oo)
[vertical up inlet, vertical down outlet;
vertical up inlet, vertical up outlet]
975XLSEU – ¾", 1", 1 ¼", 1 ½", 2" (gg)
[vertical up inlet, vertical down outlet;
vertical up inlet, vertical up outlet]
975XLST – 3/8", ½" (i) [H]
975XLTCU – ½" (i) [H]
975XLTCU – ¾", 1", 1 ¼", 11/2", 2" (gg) [H]
975XLU – ¾", 1", 1 ½", 2" (gg) [H]
927XLV – ¾", 1" (i, oo)
[vertical up inlet, vertical down outlet;
vertical up inlet, vertical up outlet]

MODEL – Size (Shutoffs) [Orientation]
* = Only spare parts available