



KANSAS DEPARTMENT OF AGRICULTURE
Dale A. Rodman, Secretary of Agriculture

DIVISION OF WATER RESOURCES
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DIVISION OF WATER RESOURCES
TOPEKA, KANSAS**

**CHECK VALVE SPECIFICATIONS
MARCH 14, 2003**

General:

(1) An acceptable check valve shall be one that is automatic, quick closing, and seals tightly to prevent the back flow of water and the substances mixed with water into the source of water supply.

(2) A check valve shall include the following four components:

- (a) a low pressure drain;
- (b) a vacuum relief device;
- (c) an inspection port; and
- (d) the check valve itself.

The check valve may consist of four individual components or a manufactured unit that includes all four of the required components.

(3) Each check valve shall meet the following standards:

- (a) All components shall be constructed of sturdy corrosion-resistant materials or coated with corrosion-resistant materials. The body of the unit shall be internally resistant to water of the quality being diverted, the foreign substances being introduced, and the external environment. All moving parts shall be constructed to operate without binding, distortion or misalignment.
- (b) The check valve shall contain a suitable, automatic, quick-closing, tight-closing mechanism that closes at the moment water ceases to flow away from the diversion works. The mechanism shall, by a mechanical force greater than the weight of the flapper, provide drip-tight closure against reverse flow. The closing force shall be positive and obvious to hand inspection. This requirement shall not be satisfied by hydraulic back pressure.

(c) A vacuum relief device, functioning as an air vent, shall be installed between the diversion works and the flapper in a position that prevents the entry of insects, animals, flood water or other foreign substances into the vacuum relief device and subsequently the water supply source.

(d) An automatic low pressure drain shall be installed between the check valve flapper element and the diversion works, and directly beneath the inspection port at the bottom of the horizontal pipe. The installation shall be made so that any fluid which seeps past the flapper element towards the diversion works will drain out through the automatic low pressure drain. The automatic low pressure drain inlet shall not extend inward past the interior pipe wall without the inclusion of an internal dam or other mechanism to force seepage into the drain. The inlet opening of the drain shall be at least three fourths of an inch in diameter and the outside discharge point shall be at least two inches above grade. Any discharge from the drain shall be directed away from the water supply by the natural slope, a pipe, or a trench.

(e) An inspection port shall be located between the check valve and the water supply diversion works in a manner that allows easy access and full visual and hand access to all components of the check valve and assembly components. The inspection port shall have an orifice or a viewing port of at least four inches in diameter. For installations with diversion works too small to install a four inch diameter inspection port, the check valve and the other required components shall be mounted with quick-connect fittings, flange fittings, dresser couplings, or other fittings designed to allow easy removal and access.

(f) Systems utilizing a double check valve or reduced-pressure-zone back flow assembly shall be required to adhere, as a minimum, to a standard equivalent to the manufacturer's standards or recommendations for a method of inspection, testing schedule, and rebuilding schedule.

(4) The check valve and all required components shall be maintained in a satisfactory operating condition that prevents backflow into the source of water supply any time a foreign substance could reasonably be expected to be introduced into the water system.

(5) Variances shall be granted only if a low-pressure drain and vacuum relief device cannot be physically placed in the system.



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PARTIAL LISTING OF APPROVED CHECK VALVES

This is **NOT** an endorsement of these products, nor is it a complete listing of all check valves that meet the Division of Water Resources' specifications effective October, 1991. It is intended as a courtesy to those wanting examples of approved check valves. If you are uncertain that the check valve you wish to use complies with Division specifications you may contact the Technical Services Section of the Division of Water Resources at 109 SW Ninth Street, Topeka, Kansas 66612-1283, (785) 296-3717. You may be asked to provide product specification information beyond the necessary manufacturer name, model number and associated water application-file number.

<u>Manufacturer</u>	<u>Model Number(s)</u>	<u>Nominal Size (Inches)</u>	<u>Inspection Port, Vacuum Relief, Low Pressure Drain</u>	<u>Comments</u>
Agri-Inject Yuma, CO 80759		6, 8, 10	Y	Ames body
Ames Co. Woodland, CA 95695	A113-25X (x = 0, 1, 2, 3, 4, 5) Silver Bullet	3, 4, 5, 6, 8, 10, 12 6, 8, 10	Y Y	Ames body
Ames Tinsa Mexico		8	Y	
Berkeley Pumps Grand Island, NE 68801	B07688, B06532 B06210, B03684 S29337	2.5, 3, 4, 5, 6	N	
Boice Crane Ind. Gothenburg, NE 69138	E	8	Y	
Clemons Sales Corp. Boise, ID 83705		6, 8, 10 6, 8, 10	Y Y	Galvanized Epoxy
Clow Valve Div. Overland Park, KS 66223	5340 5345	2, 2.5, 3, 4, 6, 8, 10, 12 14, 16, 18, 20, 24	N N	Iowa-Spring & Lever Iowa-Weight & Lever
	5381 5382	4 x 6, 4 x 8, 6 x 8	N N	Eddy-Spring & Lever Eddy-Weight & Lever
	5386 5387	4, 6, 8, 10, 12	N N	Eddy-Spring & Lever Eddy-Weight & Lever

Partial Listing of Approved Check Valves (Continued)

Fresno Valves & Casting, Inc. Lubbock, TX 79403	36xx000* (xx = 04, 06, 08, 10)	4, 6, 8, 10	N	Ames body
	CT130Cxx (xx = 03, 04, 05, etc.)	3, 4, 5, 6, 8, 10, 12	Y	Ames body
	848	2, 2.5, 3, 4, 5, 6, 8, 10, 12	N	Wafer Style
Interstate Irr. Yuma, CO 80759		6, 8, 10	Y	Ames body
Irr. Eng. & Supply Monte Vista, CO 81144		6, 8, 10, 12	Y	Clemons body
Kroy Industries		6, 8, 10	Y	Pierce body
Lake Company Bakerfield, CA 93303	712134, 712156, 712158, 712151, 712454, 712456, 712458, 712450	4, 6, 8, 10	Y	Ames body
Midwest Irrigation Henderson, NE 68371	CH1000A, CH1000B CH1000C, CH1000D	6, 8	Y	Midwest body
	CH1000A	6, 8, 10	Y	Pierce body
Netafim Aurora, IL 60504		3 to 6	N	
Northern Pump	NCCVFF, NCCVFC NCCVTC, NCCVPE NCCVPC	3, 4, 6, 8, 10	Y	Ames body
Pierce Corp. Eugene, OR 97440	480-008-00xx (xx = 04, 06, 08, 10)	4, 6, 8, 10	Y	Pierce body
Reinke Mfg. Co. Deshler, NE 68340	CV8, CV8PE	6, 8, 10 **	Y	Blue River body
T-L Irrigation Co. Hastings, NE 68371	IV6xxxx(xxxx = 295-303)	6, 8, 10	Y	Ames body
Valmont Irr. Pro. Valley, NE 68064	1KOcxxxx (xxxx=1819, 2017, 2018)	6, 8, 10	Y	Ames body
Waterman Ind. *** Garden City, KS 67846	CPC-30 CPC-30B PC-150, PC-150E CPC-150	4, 6, 8, 10 4, 6, 8, 10 4, 6, 8, 10, 12 4, 6, 8, 10, 12	Y Y N Y	 Wafer Style Wafer Style

Partial Listing of Approved Check Valves (Continued)

DOUBLE CHECKVALVE ASSEMBLIES

<u>Manufacturer</u>	<u>Model Number(s)</u>	<u>Nominal Size (Inches)</u>	<u>Comments</u>
Ames Co.	2000ss	3/4, 1, 1.5, 2, 2.5, 3	
Buckner Fresno, CA 93722	2410x (x = 0, 1, 2, etc.)	3/4, 1, 1.25, 1.5, 2	
Cla-Val Co. Prairie Village, KS	Clayton D Clayton D-2		
Febco Fresno, CA 93747	805Y-BV 805Y	3/4, 1, 1.5, 2 2.5, 3, 4, 6, 8, 10	
Rainbird Glendora, CA 91740	DC-QT-xxx (xxx = size: 75) DCA-xxx-R (xxx = size: 250)	3/4, 1, 1.5, 2 2.5, 3, 4, 6, 8, 10	Watts - 007 Series Watts - 709 Series
Watts Regulator		3/4, 1, 1.5, 2 3/4, 1, 1.5, 2, 2.5, 3, 4, 6, 8, 10	007 Series 709 Series
Wilkins Regulator	550 950	3/4, 1, 1.25, 1.5, 2, 2.5 3/4, 1, 1.25, 1.5, 2	

REDUCED PRESSURE ZONE BACKFLOW PREVENTERS

<u>Manufacturer</u>	<u>Model Number(s)</u>	<u>Nominal Size (Inches)</u>	<u>Comments</u>
Ames Co.	4000ss	3/4, 1, 1.5, 2, 2.5, 3	
Buckner Fresno, CA 93722	2400x (x = 0, 1, etc.)	3/4, 1, 1.25, 1.5, 2	2400 Series
Febco Fresno, CA 93747	825YA 825YD	3/4, 1, 1.5, 2 2.5, 3, 4, 6, 8, 10	
Rainbird Glendora, CA 91740	RP-QT-xxx (xxx = size: 75) RPA-xxx-R (xxx = size: 250)	3/4, 1, 1.25, 1.5, 2 2.5, 3, 4, 6, 8, 10	Watts - 009 Series Watts - 909 Series
Watts Regulator Olathe, KS 66062		3/4, 1, 1.25, 1.5, 2 3/4, 1, 1.25, 1.5, 2, 2.5, 3, 4, 6, 8, 10	009 Series 909 Series
Wilkins Regulator	575 975	3/4, 1, 1.25, 1.5, 2, 2.5, 3, 4, 6 3/4, 1, 1.25, 1.5, 2	

* Checkvalves manufactured prior to 1982-83 do not have a spring, but these valves can be retrofitted with a spring that meets the specifications for chemigation.

** These valves use an 8 inch body for all models; they reduce the ends for 6 inch applications and enlarge the ends for 10 inch.

*** Waterman Industries PC-30, PC-30E and PC-31 models do not meet specifications unless retrofitted with a special spring. Valve bodies cast before 1970 cannot be retrofitted while those manufactured between 1970 and 1988 have an inadequate closure spring.

NOTE: All valves must meet specifications when inspected by the Kansas Department of Agriculture regardless of this list.