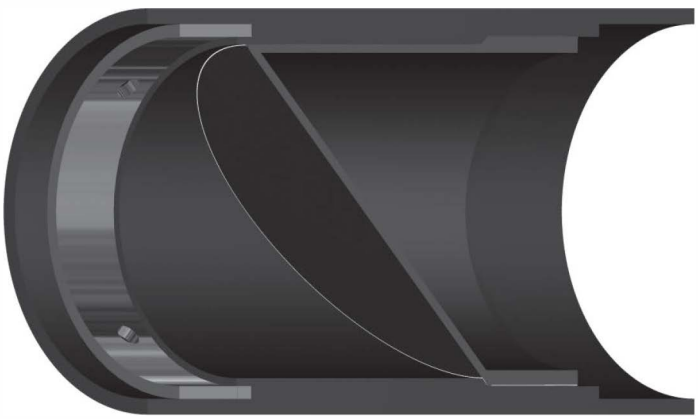
Tideflex® Technologies
Division of Red Valve, Inc.

CHECKMATE
INLINE CHECK VALVES

Althon

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL



The revolutionary design of the CheckMate Inline Check Valve provides superior backflow prevention and odor mitigation. In outfalls, stormwater, CSO and SSO applications, the CheckMate's custom-engineered, all-rubber unibody design eliminates costly backflow from oceans, rivers and interceptors. The valve's unique elastomer fabric-reinforced design provides a proven record of maintenance-free performance, cost savings and results that no other inline check valve can match. The CheckMate is built to suit all your site-specific and flow needs.

The CheckMate has a 100% fabric and elastomer construction that eliminates corrosion problems. Because the CheckMate is made with a unibody construction, there are no mechanical components to catch debris, corrode or fail.

The CheckMate Valve's inherit flexibility virtually eliminates seating problems. The CheckMate remains in the closed position until flow in the forward direction opens it. The fabric-reinforced elastomer CheckMate Valve seals tighly aroun dsilt and small debris, preventing unwanted backflow.

The major advantage of the CheckMate Valve is its extremely low headloss. The CheckMate can open to a near full pipe diameter. This maximizes flow capacity of the outfall, which is particularly beneficial in low-lying areas where limited driving head is available.

IMPORTANT

Please take a moment to **review this manual. Before performing any maintenance on the pressure sensors be sure the pipeline has been depressurized.** The improper installation or use of this product may result in personal injury, product failure, or reduced product life. Tideflex® Technologies can accept NO liability resulting from the improper use or installation of this product. If you have any questions or problems, please call the customer service department at (412) 279-0044. We appreciate your comments. Thank you for choosing Tideflex® Technologies.

INSTALLATION

1. Inspection of Valve
Check inside diameter of pipe section for rough or damaged areas. Surface should be uniform and relatively smooth. Long gouges or cracks may allow water to pass and should be filled prior to installation. The exterior of the CheckMate should have a rough texture resembling a cloth pattern. This will help the valve grip the walls of the pipe.

2. Valve Orientation
The sealing area of the CheckMate must be installed horizontally. Valves 4" - 18" (nominal) are supplied with a single clamp. The clamp turnbuckle should be oriented at top dead center.

Valves 20" - 60" (nominal) are supplied with two clamps. The turnbuckles should be oriented 180˚ apart.

3. Pipe Dimensions
Every CheckMate Valve is designed and built to fit into a specific pipe inside diameter. Different pipe materials such as concrete, HDPE, steel, and PVC have different. I.D. dimensions for the same nominal pipe size. Do not attempt to install a CheckMate into a pipeline for which it was not intended.

4. Preparation
The CheckMate uses expanding clamp(s) to exert pressure outwards on the walls of the valve to "wedge" it in place within the pipe. The walls of the pipe should be clean and free of debris prior to installation.

5. Securing
The valve should be inserted fully into the pipe so that no part of the cuff or bill extends outside the pipe. Ensure that the valve is not "slanted" at an angle, with the sealing area pointing upwards or downwards. The valve centerline should be parallel to the pipe centerline.

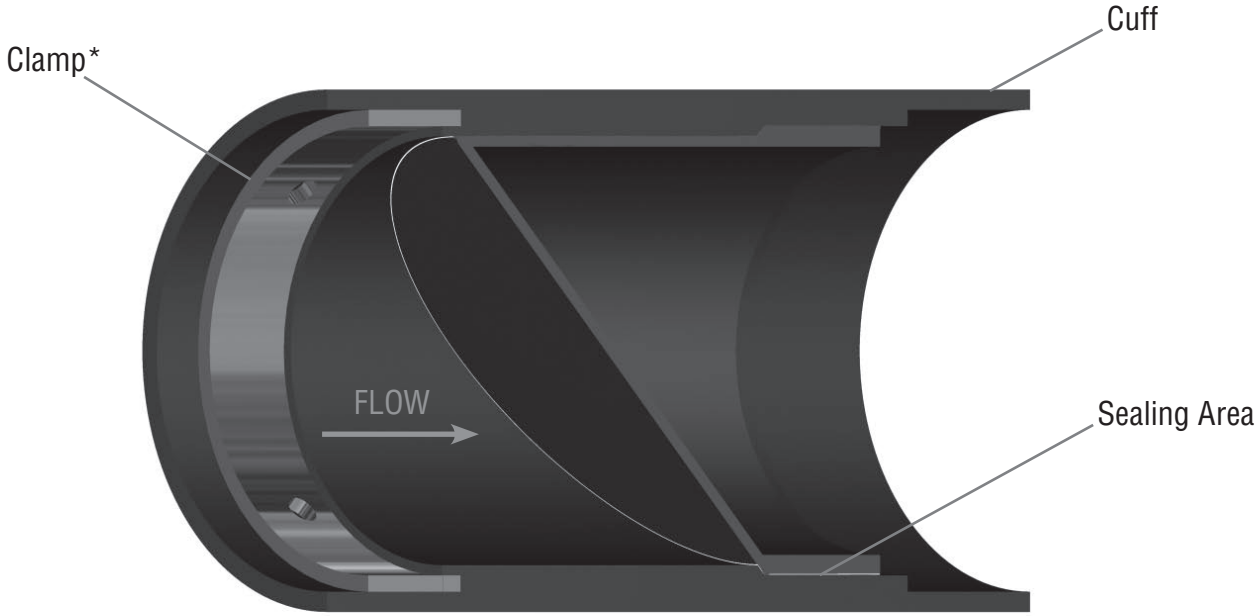
Tideflex® Technologies recommends pinning the CheckMate on all installations. See below.

Pre-drilled holes are provided in each expansion clamp. At least one clamp should be pinned. On exposed pipe, holes can be drilled through the valve and pipe, and a bolt run through secured with a nut. For buried pipe, silicon or similar sealant should be used to seal bolts.

6. The outside of the CheckMate Valve is marked with the word "top." The "top" marking is to be positioned in the 12:00 position.

7. The CheckMate Valve is provided with a flow direction marking. The valve must be installed in the correct direction to allow the valve to operate properly. Valves installed backwards will not function, may invert and void the warranty, even if the valve position is later reversed.

NEVER... Install the valve at an angle	**NEVER...** Use Sharp Tools on Rubber	**NEVER...** Exceed Design Back Pressure	**NEVER...** Install the Valve Backwards



* Clamps are installed in the upstream or downstream cuff, dedpending upon the application.

INSTALLATION NOTES FOR CHECKMATE

A. It is important that the CheckMate is installed level within the pipe. The CheckMate may "gap open" it installed improperly.

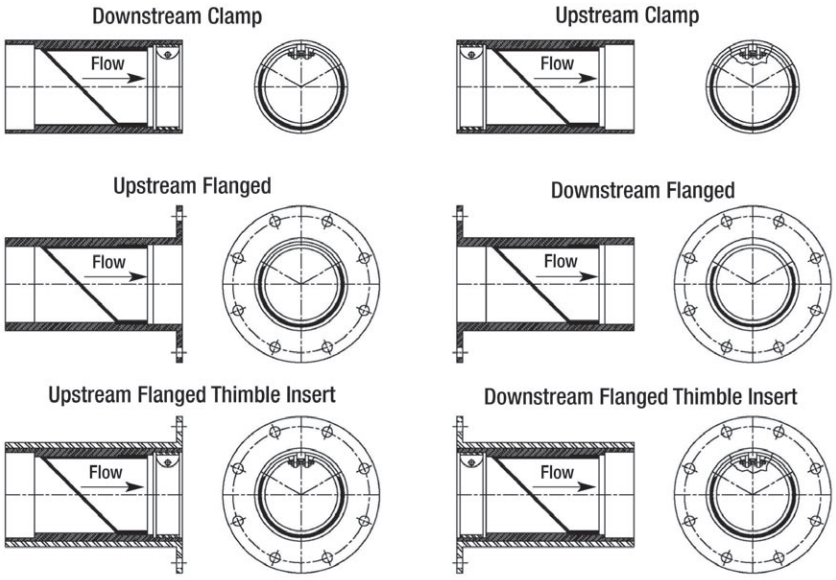
B. The sealing area of the CheckMate must have room to expand outwards, while bottom of the sealing area rises. The area around the sealing area must be kept free of debris to allow the bill to close in order for the valve to seal properly.

C. The CheckMate effectively reduces the inside diameter of the pipe in which it is installed, creating a restriction. It may also create a "ledge" inside the pipe, causing standing water.

D. Back pressure in excess of the maximum line pressure may invert the sleeve and cause valve failure.

E. Should the conditions that the CheckMate was designed for change, (line pressure, back pressure, chemical compatibility) the performance of the valve may suffer.

F. CheckMate Valves must be installed in true round pipe which is concentric across the entire length. Out of round pipe will cause the sealing area of the valve to distort and gap, which will cause the valve to leak.



Nominal Pipe Size I.D.*		Overall Length**		Number of Clamps	Cuff Depth		Backpressure Rating	
Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters
4	100	9.3	236	1	1.5	38	40	12
6	150	13.5	343	1	2	51	40	12
8	200	16.7	424	1	2	51	40	12
10	250	19.8	503	1	2	51	40	12
12	300	23	584	1	2	51	40	12
14	350	30.2	767	1	4	102	20	6
16	400	33.3	846	1	4	102	20	6
18	450	36.5	927	1	4	102	20	6
20	500	47.7	1212	2	8	203	20	6
24	600	54	1372	2	8	203	20	6
30	750	63.5	1613	2	8	203	20	6
36	900	73	1854	2	8	203	20	6
42	1050	82.5	2096	2	8	203	10	3
48	1200	92	2337	2	8	203	10	3
54	1350	101.5	2578	2	8	203	10	3
60	1500	119	3023	2	12	305	10	3

**Larger sizes available upon request.*

***Shorter lengths available.*

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Technical Data

CheckMate™ Inline Check Valve Install With Tape

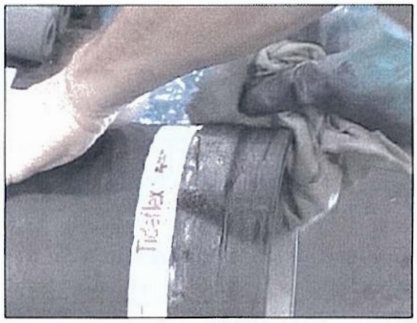
To install a CheckMate™ Inline Check Valve into a pipe in which the valve O.D. is smaller than the pipe I.D., follow the instructions below. 1/8" thick vulcanized rubber tape is used to build up the O.D. of a CheckMate™ Inline Check Valve until it fits into the I.D. of the pipe. Please note, the 1/8" thick rubber vulcanized tape can only be used on CheckMate™ Inline Check Valves size 3"-18". The example pictured below builds up the O.D. of a 9.5" CheckMate™ Inline Check Valve to fit into a pipe with a 10" I.D.

While valves 20" and larger are custom built, 4"-18" CheckMate™ Inline Check Valves are built to standard specifications and dimensions as charted below. In sizes 4"-18":

- The cuff end is interchangeable, allowing the valve to be inserted into the pipeline from either end.
- All CheckMate™ Valves have a standard back pressure rating.
- All CheckMate™ Check Valves are built to a common O.D.

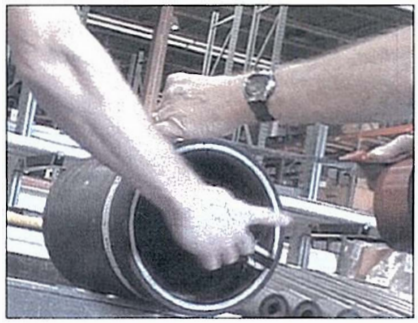
CHECKMATE™ INLINE CHECK VALVE

VALVE SIZE	LENGTH		CUFF DEPTH	CUFF/CLAMP MINIMUM	BACK PRESSURE RATING		STANDARD VALVE O.D.
inches	inches	millimeters	inches		feet	meters	inches
4	9.3	236	1.5	1	40	12	3.75
6	13.5	343	2	1	40	12	5.5
8	16.7	424	2	1	40	12	7.88
10	19.8	503	2	1	40	12	9.5
12	23	584	2	1	40	12	11.88
14	30.2	767	4	1	20	6	13.5
16	33.3	846	4	1	20	6	15.5
18	36.5	927	4	1	20	6	17.5



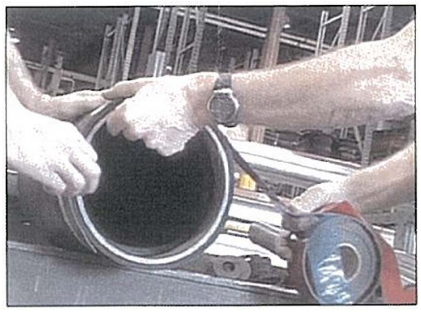
Step 1: Clean the outside surface on the clamped end of the CheckMate™ Valve. Remove all surface dirt so the 1/8" vulcanized rubber tape will stick to the valve.

Step 2: Place the CheckMate™ Valve on a solid surface with the clamped end hanging slightly over the edge of the surface.



Step 3: Unroll a small amount of the 1/8" thick vulcanized rubber tape. Remove plastic from both sides of the unrolled tape. Leave length of tape attached to roll.

Step 4: Place the rubber tape, adhesive side down, against the outer edge of the clamped end of the CheckMate™ Valve. Make sure the edge of the tape is flush with the edge of the valve. Press firmly into place.



Step 5: Slowly rotate the CheckMate™ Valve, as you continue to press the rubber tape into place around the circumference of the valve. As you apply more of the tape, press it firmly into place and line the edge of the tape up with the edge of the valve.

Step 6: Unroll more of the tape. Remove plastic from tape. Continue to apply tape to the outside circumference of the valve to build up the O.D. to the desired size. In this example, 3-4 layers of continuously wrapped tape was used. **The number of layers required is a function of the pipe I.D. dimension.**

Step 7: When the O.D. reaches the desired size, cut the rubber tape from the roll using sharp scissors. Press the end of the tape firmly into place on the CheckMate™ Valve.

Step 8: The CheckMate™ Valve is now ready to be installed into a pipe. Gently slide the valve into the end of the pipe with the clamped end facing out. Make sure the area marked top on the valve is at the 12:00 position. The edge of the CheckMate™ Valve should rest flush with the edge of the pipe opening.

Step 9: Once the CheckMate™ Valve has been eased into position, check the O.D. of the valve, making sure it fits snugly into the I.D. of the pipe. If the fit is loose, slide the CheckMate™ Valve out of the pipe and apply another layer of rubber tape to obtain the appropriate O.D.

Step 10: If you have removed the CheckMate™ Valve to apply another layer of rubber tape, gently place the CheckMate™ Valve back into the pipe. There should be no rolling or moving of the rubber tape as you slide the valve into place. The valve should fit snugly into the pipe with the area of the valve marked top at the 12:00 position.

Step 11: Once in place, tighten the ring clamp inside of the CheckMate™ Valve to secure it against the pipe. Using a wrench, tighten the bolts on the clamp until the valve is locked into place. The tightening of the clamp will compress the tape, making it waterproof. When properly done, water will not bypass the seal. If the valve to pipe area leaks, remove the valve and repeat steps 9-10.

Step 12: Once the bolts are tightened and the rubber tape is compressed, the CheckMate™ Valve is installed and ready for operation.

MAINTENANCE

1. Inspection

Valves should occasionally be inspected for damage, wear, and buildup of debris. The frequency of the inspections should be determined by the severity of the service and the environment in which it operates.

The clamp should be checked for proper tension, and be sure that the inside of the valve is free of debris. Soft marine growth is normal on valves in submerged applications. Because hard marine growth such as barnacles will not bond well to the CheckMate, they can be easily removed. Also insert pins to ensure they are tight.

STORAGE

If your CheckMate is to be stored for a period of time prior to installation, the following storage guidelines will help to preserve the valve and assure a trouble-free installation.

1. Store in a clean, cool, dry location. Avoid exposure to light, electric motors, dirt, or chemicals.
2. Store valve vertically on floor or pallet.
3. Store valve to prevent other items from contacting check sleeve to prevent possible damage.
4. Store this manual with the valve, so that is readily available at time of installation.

TROUBLESHOOTING GUIDE

SLEEVE INVERTED

• Excessive back pressure, water surge, or water hammer.

LEAKING AROUND PERIMETER OF VALVE

• Tighten Clamp
• Check for cracks and holes in surface of pipe

BACKFLOW

• Debris lodged inside bill
• Debris built up beneath bill

TIDEFLEX® TECHNOLOGIES WARRANTY

WARRANTIES - REMEDIES - DISCLAIMERS - LIMITATION OF LIABILITY

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