



Tideflex[®]
Technologies

CheckMate™ Inline Check Valve

U.S. Patent # 5,769,125
And Other Patents Pending



Red Valve Company, Inc.[®]

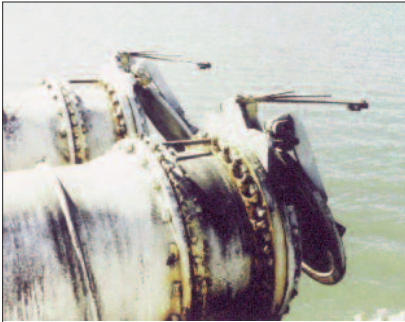
CheckMate: the Final Move to Eliminate Backflow

It's A Winning Move! The Revolutionary CheckMate™ Inline Check Valve

Patented by Red Valve Company in 1998, the CheckMate™ Inline Check Valve is ideal for 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.

CheckMate™ Valves are readily available in 4" to 72" sizes. The CheckMate™ is built to suit all your site-specific and flow needs.

Maintenance-Free, Totally Passive Operation



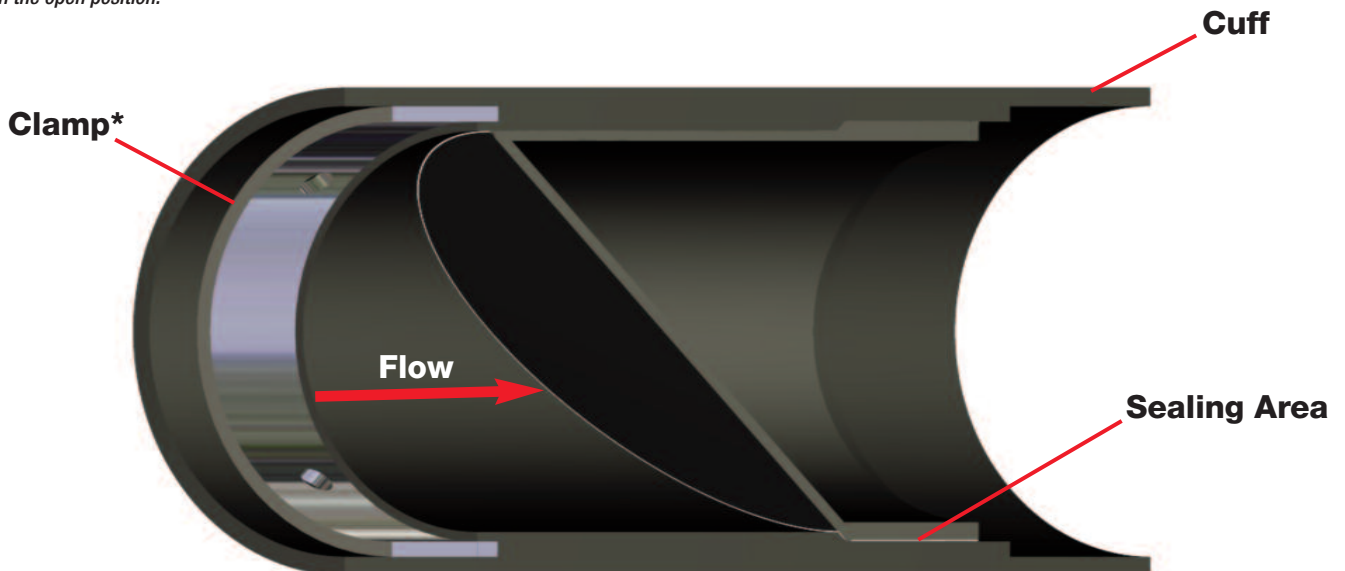
Faulty flapgate valves that have corroded in the open position.

Flapgate valves are mechanical and have moving parts with inherent problems of corrosion, faulty function and wear. Replacing traditional flapgate valves with the CheckMate™ Inline Check Valve eliminates these issues.

CheckMate™ Engineered Features

- Extremely Low Headloss
- Durable, 100% Elastomer Construction
- Easily Installed in Any Type of Pipe
- No Mechanical Parts
- 4" (100 mm) - 72" (1800 mm) Size
- 25 Year Life Expectancy
- Operates on Differential Pressure
- Virtually Maintenance-free
- Self-draining
- Less than 1" of Head Pressure Cracks Open the Valve
- Eliminates Standing Water
- Silent, Non-slamming
- Simple Installation
- Extensive Independent Hydraulic Testing
- Opens to Near Full Pipe Diameter

Like the Tideflex® Check Valve, 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 result is savings - both in time and costs.



Cutaway illustration of the CheckMate™ Valve, clamped from the upstream end.

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

CHECKMATE™ VALVE

Designed for Inline Service

Passes Large Debris and Eliminates Seating Problems

Most traditional valves are prone to debris lodging in the seating area, which in turn prevents the valves from closing. This results in excessive backflow. The CheckMate™ Valve's inherent flexibility virtually eliminates the seating problems associated with traditional valves. The CheckMate™ Valve remains in the closed position until flow in the forward direction opens it. The fabric-reinforced elastomer CheckMate™ Valve seals tightly around silt and small debris, preventing unwanted backflow.

Lowest Headloss of Any Check Valve

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

Easy to Install

The CheckMate™ Inline Check Valve is easily installed by inserting the valve into the pipe, then clamping the valve into position from the upstream or downstream end.

CheckMate™ Valve Operation

Fully Open



Half Open



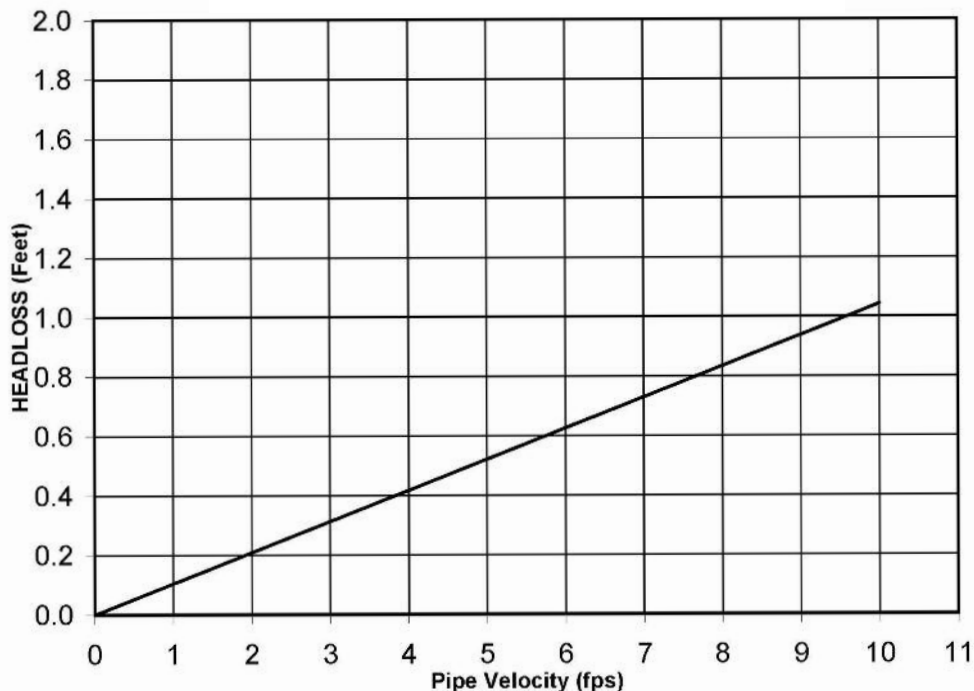
Partially Open



Closed



Tideflex® CheckMate™ Valve Headloss vs. Pipe Velocity



CheckMate™ Applications: Simply Versatile!



One of multiple 60" CheckMate™ Valves being shipped.

Odor Control

CheckMate™ Inline Check Valves prevent sewer systems' offending odors from backing up, while still allowing water to discharge when needed. The Checkmate™ Valve is designed to eliminate the backflow of unwanted gases that typically result in complaints about odor from the general public.



Drainage and Outfall Lines

CheckMate™ Inline Check Valves have become a frequently specified solution for municipal, commercial and residential areas where complete, dependable backflow prevention is necessary. The Checkmate™ Valve's maintenance-free, passive operation provides years of trouble-free service.



CHECKMATE™ VALVE

Designed for Inline Service

Interceptor and Manhole Installations

CheckMate™ Inline Check Valves are used for interceptor and manhole installations because they are ideal for preventing water from backflowing into a sewage treatment plant. The CheckMate™ Valve's innovative inline design allows it to be installed without modifications to structures such as interceptors, manholes and vaults.



Stormwater Runoff

The CheckMate™ Inline Check Valve is the valve of choice by both coastal and inland municipalities for stormwater and CSO systems. Because the CheckMate™ Valve utilizes a fabric-reinforced elastomer construction, there are no mechanical parts to warp or corrode. It is maintenance free!



Testing

CheckMate™ Inline Check Valves are put to the same vigorous testing methods as the Tideflex® Check Valve. The CheckMate™ Valve is proven to operate maintenance-free.

The valve can successfully withstand severe winter freezes, typhoons, hurricanes and flooding. The CheckMate™ also minimizes damage to wetlands, beaches and residential areas, eliminates hydraulic surges to wastewater treatment plants and saves municipalities millions of dollars in maintenance and treatment costs.



CheckMate® Performance

Sample Specification

PART 1: GENERAL

1.01 SUBMITTALS

A. Submit product literature that includes information on the performance and operation of the valve, materials of construction, dimensions and weights, elastomer characteristics, headloss, flow data and pressure ratings.

B. Upon request, provide shop drawings that clearly identify the valve materials of construction and dimensions.

1.02 QUALITY ASSURANCE

A. Supplier shall have at least twelve (12) years experience in the design and manufacture of “CheckMate™” style elastomeric check valves.

B. Manufacturer shall have conducted independent hydraulic testing to determine headloss, jet velocity and vertical opening height characteristics on multiple sizes of CheckMate™ valves ranging from 4” through 72”. The testing must have been conducted for free discharge (discharge to atmosphere) and submerged conditions.

PART 2: PRODUCTS

2.01 “CHECKMATE™” ELASTOMERIC CHECK VALVES

A. Check Valves are to be all rubber and the flow operated check type with slip-in cuff or flange connection. The entire CheckMate™ Valve shall be ply reinforced throughout the body, disc and bill, which is cured and vulcanized into a one-piece unibody construction. A separate valve body or pipe used as the housing is not acceptable. The valve shall be manufactured with no metal, mechanical hinges or fasteners, which would be used to secure the disc or bill to the valve housing. The port area of the disc shall contour down, which shall allow passage of flow in one direction while preventing reverse flow. The entire valve shall fit within the pipe I.D. Once installed, the CheckMate™ Valve shall not protrude beyond the face of the structure or end of the pipe.

B. The downstream end of the valve must be circumferentially in contact with the pipe while in the closed positions.

C. Slip-in style CheckMate™ Valves will be furnished with a set of stainless steel expansion clamps. The clamps, which will secure the valve in place, shall be installed inside the cuff portion of the valve, based on installation orientation, and shall expand outwards by means of a turnbuckle. Each clamp shall be pre-drilled allowing for the valve to be pinned and secured into position in accordance with the manufacturer’s installation instructions. Flange style CheckMate™ Valves will be furnished with a stainless steel, ANSI 125/150 drilled, retaining ring unless specified otherwise.

D. Manufacturer must have flow test data from an accredited hydraulics laboratory to confirm pressure drop and hydraulic data. Company name, plant location, valve size patent number, and serial number shall be bonded to the check valve.

2.02 FUNCTION

A. When line pressure exceeds the backpressure, the line pressure forces the bill and disc of the valve open, allowing flow to pass. When the backpressure exceeds the line pressure, the bill and disc of the valve is forced closed, preventing backflow.

2.03 MANUFACTURER

A. All valves shall be of the slip-in or flanged CheckMate™ as manufactured by Tideflex Technologies®, A Division of Red Valve Company, Carnegie, PA 15106. All valves shall be manufactured in the U.S.A.

PART 3: EXECUTION

3.01 INSTALLATION

A. Valve shall be installed in accordance with manufacturer’s written Installation and Operation Manual and approved submittals.

3.02 MANUFACTURER’S CUSTOMER SERVICE

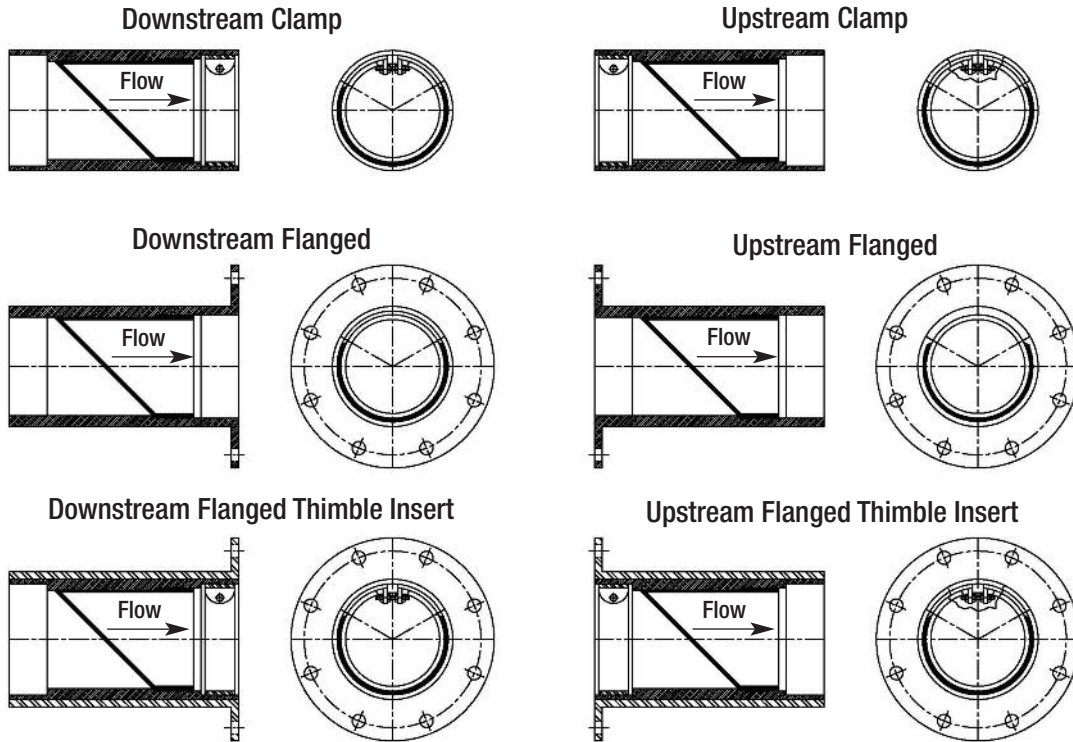
A. Manufacturer’s authorized representative shall be available for customer service during installation and start-up, and to train personnel in the operation, maintenance and troubleshooting of the valve.

B. If specified, the manufacturer shall also make customer service available directly from the factory in addition to authorized representatives for assistance during installation and start-up, and to train personnel in the operation, maintenance and troubleshooting of the valve.

CHECKMATE® VALVE

Designed for Inline Service

Mounting Styles and Configurations



Flange shape and bolt pattern can be customized.
Flangeless thimble inserts are available.

CHECKMATE™ VALVE								
NOMINAL PIPE SIZE I.D.*		OVERALL LENGTH**		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING	
Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters
4	100	7.86	200	1	1.5	38	40	12
6	150	9	229	1	2	51	40	12
8	200	15.23	387	1	2	51	40	12
10	250	16.12	409	1	2	51	40	12
12	300	23	584	1	2	51	40	12
14	350	25.75	654	1	4	102	20	6
16	400	28.61	727	1	4	102	20	6
18	450	31	787	1	4	102	20	6
20	500	42.14	1070	2	8	203	20	6
24	600	47.5	1207	2	8	203	20	6
30	750	54.87	1394	2	8	203	20	6
36	900	62.25	1581	2	8	203	20	6
42	1050	70.62	1794	2	8	203	10	3
48	1200	79	2007	2	8	203	10	3
54	1350	86.37	2194	2	8	203	10	3
60	1500	102.5	2604	2	12	305	10	3

*Larger sizes available upon request.

**Shorter lengths available.

The best choice for the toughest applications.

In addition to the Checkmate™ Inline Check Valve, Tideflex® Technologies offers a complete line of dependable elastomer check valves.

TF-1 CHECK VALVES

Tideflex® Technologies' 25-plus years of proven field operation, research, development and continued engineering enhancements have all combined to make the TF-1 the most reliable check valve in the industry today. The TF-1 achieves the tightest possible seal for backflow applications, particularly at low flow rates. When you specify a patented TF-1 Check Valve, you are guaranteed a proven record of maintenance-free backflow prevention.



SERIES 35-1 CHECK VALVES

The flat-bottom Series 35-1 features an integral rubber flange, allowing them to be mounted onto flanged outfall pipes or directly onto headwalls where the pipe is flush. The flange size drilling conforms to ANSI B16.10, Class 150#. Or it can be drilled to DIN or other standards. The Series 35-1 Check Valve is furnished complete with steel or stainless steel backup rings for installation.



SERIES 39 CHECK VALVES

The Tideflex® Series 39 Inline Check Valve features a fabric-reinforced elastomer check sleeve housed in a cast iron body with ANSI 125/150 flanges, allowing for easy installation into any piping system. The valve's operation is silent, non-slamming and maintenance free. Sliding, rotating, swinging and plunging parts are completely eliminated. The body is equipped with flush ports and a clean-out port and can be epoxy coated.



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