“Rely on Red” for a Total System Solution to Your Water and Wastewater Treatment Challenges

No other company can match Red Valve’s “Total System Solution” for water and wastewater treatment plants and municipal collection and distribution systems.

Since 1953, Red Valve has provided products for each phase of collection, distribution, separation, aeration, treatment and final discharge. Our complete product line provides customers with one source for on/off and control valves, check valves, pressure measurement, expansion compensation, air diffusers and effluent diffusers. All Red Valve products are designed for the rigors of handling raw sewage, sludge, scum and grit with abrasion-resistant, non-clogging solutions.

Call us today for a copy of our Municipal Collection and Distribution brochure.
**Total Solutions for Wastewater Treatment**

Red Valve works closely with designers and operators of wastewater treatment plants to provide innovative solutions to their most difficult challenges. Red Valve products are specifically engineered for the rigors of slurries such as sewage, sludge, scum and grit, as well as lime addition, digester gas control, backflow prevention and effluent discharge. Rely on Red Valve’s Total Solutions for every step of your treatment process—from collection to final discharge.

**“Rely on Red” for Your Toughest Applications.**

What sets Red Valve products apart from traditional metal valves is their elastomer technology. In addition to providing a superior flow pattern, the elastomer sleeves deliver unsurpassed abrasion and corrosion resistance. As the only wetted part of the valve, the synthetic elastomer sleeve completely isolates the process fluid from the metal body and operating mechanism.

Series 75 and Pressure Sensors with Hypalon Sleeves are the ideal choice for sodium hypochloride and other corrosive chemical additives. The sleeve is the only wetted part, providing a long-term, corrosion-resistant service life.

Electrically Actuated Series 5400E controls digester sludge accurately and requires no maintenance.

Series 75B is the ideal choice for below-grade service, with no packing, seats or bonnets to maintain.

Red Valve Product Solutions
Red Valve’s Tideflex®, CheckMate® UltraFlex™ and Series 39 Check Valves are used in thousands of combined sewer overflow (CSO) systems to protect collection pumps from backflow during times of high tide and heavy rainfall. All operate on the same principle – forward hydraulic pressure opens the valve’s bill to allow flow, and reverse pressure seals the bill, preventing backflow. The all-rubber construction is resistant to rust and corrosion, unlike flapgates with hinge-pins and seats that can misalign.

For inline installations, Red Valve offers a variety of products. The Series 39 is constructed of a fabricated steel or cast iron body with an integral rubber check sleeve which handles flow with low head loss. The valve’s operation is passive, requiring no outside energy source, levers or counterweights.

The patented CheckMate® UltraFlex™ Inline Check Valve is designed to be installed inside the pipe. The valve prevents backflow, odors, rodents and raw sewage from entering residences and businesses.

Engineered rubber check valves have memory: forward hydraulic pressure opens the valve, and reverse pressure seals the valve and prevents backflow.

Collection Systems: The Professional’s Choice

Red Valve’s Large Diameter 84” Series 39 Inline Check Valve is used for stormwater backflow prevention at this Santa Rosa, California plant.

The New UltraFlex™ Inline Check Valve: Lower Headloss than Ever Before!

The new CheckMate® UltraFlex™ Valve, with its patented “Arc Notch” and optimized construction, opens 40% sooner than other check valves, allowing the pipeline and entire collection system to drain up to 40% faster. Because the UltraFlex™ Valve “snaps” open with far less head pressure, pipeline capacity is significantly increased, allowing a free flow of water during weather events, minimizing the chance for standing water to collect upstream.

There Is Only One Tideflex® Check Valve: Accept No Imitations

What sets Red Valve’s legendary Tideflex® Check Valves apart from other “look alike” valves is years of leading-edge elastomer technology experience and know-how. In addition to a superior flow pattern, Tidfllex® Check Valves provide unsurpassed abrasion and corrosion resistance, and deliver years of reliable, maintenance-free service.
Wherever pumps are used to move or lift water, Red Valve products can be found, providing solutions for a wide range of applications. Wastewater is most often collected by gravity sewers and then lifted by pumps to allow it to flow through the treatment process. Red Valve products are designed to handle slurries such as raw sewage through full-port designs and abrasion resistant materials. There are no flow direction changes and no cavities or dead spaces where material can build up.

Red Valve Knife Gates Valves’ rugged design and thin profile are ideal for pump isolation or bypass lines. Red Valve Tideflex® and CheckMate® UltraFlex™ Inline Check Valves provide unmatched backflow prevention to keep drainage lines empty and prevent potential flooding. They are often used at the discharge point to prevent floodwaters or tidal surges from entering the pipeline.

The viscous nature of wastewater creates problems with accurate pressure measurement. Traditional gauges and diaphragm seals clog quickly and do not signal the pump to stop when a blockage is encountered, often damaging pumps and other process equipment. Red Valve pressure sensors feature a full-port opening and a 360-degree sensing element to ensure an accurate pressure reading, regardless of conditions. Red Valve Pressure Sensors are the only sensors that will stay operational on difficult process fluids such as sewage, sludge and scum.

These Large Diameter Knife Gate Valves have been installed in the City of Houston, Southwest Pumping Station since 1987.
Influent Flow Control: Specify Red Valve for Reliability

One of the most difficult applications in wastewater treatment is influent flow control. In these large diameter systems, long-term reliability is essential. It is crucial that the valve be able to handle anything that can flow into the sewer lines, including tree branches, plastic bags, bottles, sand and grit, chemical spills, aluminum cans and other debris that can clog traditional valves. Even if the influent flow control valve is installed after initial screening, it must still deal with concentrated sewage and abrasive grit, which often moves at a considerable velocity as it enters the treatment process.

Red Valve’s Large Diameter Pinch Valves’ full-port openings allow for no obstructions and no change in the direction of flow. There are no crevices or dead spots where debris can collect, and flexible but rugged walls of the elastomer sleeves prevent buildup while sealing around entrapped solids for a drop-tight shut off.

Type A Megaflex®, with fabricated steel body and Neoprene sleeve controlling raw sewage entering wastewater treatment plant in Georgia.

“Rely on Red” for the Toughest Influent Applications!
Grit Removal: Red Valve Is Your Workhorse

During the pretreatment stage, wastewater is passed through a bar screen to remove large debris. It then moves on to a de-grit chamber, where small solids, such as stones, gravel and metal particles, are removed. This grit is extremely abrasive and will wear metal seated valves quickly. The Series 75 Manual Pinch Valve uses a rugged elastomer sleeve that absorbs the impact of the particles. The sleeve lasts longer than even expensive metal alloys and is easy and inexpensive to replace.

Caustic and chemical solutions such as carbon, ferric chloride and lime, are used to equalize wastewater in the first stage of treatment. While these materials present tough problems for metal valves, Red Valve’s Control Pinch Valves’ advanced elastomer sleeves resist abrasion and corrosion. Their flexing action breaks apart dewatered solids each time the valve is actuated, even after long periods of inactivity.

Series 40 Pressure Sensors can withstand the rigors of grit removal.

Series 5400E Control Valves have been specified in this automated grit system.
World-Class Digester Performance

Digester gases are composed of methane, water and other compounds that create sulfurous and sulfuric acids which in turn can quickly corrode metal plug valves. Corrosion occurs not only in the valve’s interior but also in the closing mechanisms, affecting the valve’s ability to achieve positive shut off and causing significant maintenance problems. Plug valve manufacturers have tried to provide various solutions, such as aluminum, stainless steel and rubber-lined valves, but have had only minimal success.

Red Valve’s rugged sleeves are constructed of non-permeable and corrosion-resistant elastomers. The sleeve isolates the valve body by keeping the process medium completely enclosed. For isolation applications, Red Valve Manual Pinch Valves' bi-directional, drop-tight shut off yields reliable service, time after time, year after year.

Manual Series 75 Pinch Valves on reactivated sludge provide years of maintenance-free operation.

Series 75 RAS and WAS shut off valves.
The Superior Solution for Aeration and Mixing

For optimum performance in aeration and mixing, Red Valve's Coarse and Fine Bubble Air Diffuser Systems incorporate legendary Tideflex® technology to increase jet velocity while eliminating risk of damage caused by backflow and clogging.

Historically, there have been two options in air diffuser systems. Fine bubble diffusers could provide the biological system requirements at a low airflow rate, but generally the airflow had to be increased to provide sufficient mixing. Coarse bubble diffusers provided high mixing power, but needed twice the airflow to meet oxygen requirements.

Red Valve’s Tideflex® engineers have designed a superior approach in aeration system technology by combining the aeration benefits of our fine bubble systems with the mixing benefits of our coarse bubble systems. This unique combined system can meet the biological system requirements for oxygen and still provide sufficient mixing at a lower total airflow.

Combined System Benefits Include:

- Median O₂ Transfer Efficiency
- Excellent Mixing Energy
- Reduced Maintenance Cost
- Reduced Capital Cost
- Median Operating Cost

Tideflex® Coarse Bubble Mixing Systems can be operated in ON/OFF mode to produce a biological selector where facultative anaerobic bacteria is cultivated as the dominant microorganism. These bacteria excel in denitrification and nutrient uptake. These alternating systems can reduce operational horsepower by 40 to 50 percent.

Red Valve’s signature “T” configuration allows Diffuser Systems to be installed very low in the tank, preventing collection of solids at the bottom of the tank. The all-rubber construction eliminates maintenance costs, and the patented Tideflex® Duckbill Check Valve design prevents backflow of sludge during power failures or routine shutdowns.
Red Valve provides a complete line of custom-engineered Effluent Diffuser Systems that help protect the environment by maximizing jet velocity of discharging effluent. This improves mixing and initial dilution while preventing backflow into the header pipe.

Wide bill or conventional Tideflex® Nozzles are both custom-built to exact specifications and fabricated to ensure required hydraulics throughout the entire flow range. All systems are equipped with Redflex® Rubber Elbows and integral wire-reinforced Rubber Risers, which are flexible yet strong enough to deflect and return when impacted, reducing the possibility of damage to the outfall header pipe and risers.

Red Valve has conducted extensive independent testing of Tideflex® Nozzles from 2” (50mm) to 48” (1200mm) and has developed an exclusive hydraulic modeling program to assist engineers in designing multiport diffusers. The program provides data on jet velocity, effective diameter and open area, along with headloss at all flow rates. This data can also be compared to the hydraulics of fixed-diameter ports to illustrate the hydraulic advantages of variable orifice Tideflex® Nozzles.

Effluent Diffusers:
The World’s Most Effective Systems

Tideflex® Diffuser Valves:
- Prevent Intrusion of Debris, Sediment, Saltwater and Aquatic Life
- Provide Proven Long-Term, Maintenance-Free Service Life
- Enhance Jet Velocity
- Improve Initial Dilution
- Provide a More Uniform Flow Distribution Across Parts
- Promote Significant Improvement in Saltwater Purging

Proven Performance On:
- Marine Outfalls
- Inland Outfalls
- Retrofit Outfall Pipelines

(12) 6” Tideflex® Diffuser Valves with integral 3 foot risers discharging to a shallow river.

(12) 1,050mm Tideflex® Diffuser Valves installed on emergency outfall in Hong Kong.
Maximize Flexibility With Redflex® Expansion Joints

Redflex® Expansion Joints and Rubber Fittings are designed to alleviate piping stress, compensate for movement, reduce noise and isolate vibration. Made in the U.S.A. by Red Valve Company, Redflex® Expansion Joints can be custom-built in a variety of styles and configurations to accommodate pipe size reduction, misalignments and offsets. Red Valve offers flanged and slip-on connections, single or multiple arches and a range of elastomers to meet process conditions, including Teflon-lined joints for severely corrosive applications.

Redflex® Products:
- Expansion Joints
- Rubber Elbows
- Rubber Fittings
- Ducting Joints
- Vibration Pipes
- Teflon Lined
- Flanged or Slip-On
- Sizes 1" - 108"

Reflex Elastomer Selections:
- Pure Gum Rubber - 180° F
- EPDM - 300° F
- Viton - 400° F
- Butyl - 250° F
- Neoprene - 230° F
- Teflon Lined - 250° F
- Hypalon - 230° F

Redflex® Expansion Joints Are Ideal For:
- Aeration Systems
- Chemical Feed Pumps
- Pump Vibration Elimination
- Odor Control Systems
- Grit Pumps
- Blower Vibration Elimination

Red Valve Pressure Sensors: Precise Measurement, No Instrument Fouling

The viscous nature of wastewater creates challenges with accurate pressure measurement. Traditional gauges and diaphragm seals clog quickly and do not signal the pump to stop when a blockage is encountered, often damaging the pumps and other process equipment. Red Valve Pressure Sensors solve this problem with full-port openings and 360-degree sensing elements to ensure accurate pressure readings, regardless of conditions. Red Valve Pressure Sensors never plug or foul like traditional diaphragm seals on slurries.

Red Valve Pressure Sensors are used with pressure gauges and transmitters, sending signals to protect pumps from running dry.

Red Valve Pressure Sensors used for accurate reading of polymer feed system.

Red Valve Tank Level Sensors are unaffected by foaming, ice and other conditions that cause errors in ultrasonic and capacitance level sensors. Their high-sensitivity, solid-state pressure transmitters are completely isolated from the process fluid by an elastomer sleeve that transmits pressure through a fluid fill, accurate to 2".

The sensor’s elastomer diaphragm provides maximum surface area with minimum diameter allowing installation close to the bottom of the tank. The sensor can also be “rodded” from the outside of the tank to the inside of the tank, if necessary, in the event of severe blockage.

The viscous nature of wastewater creates challenges with accurate pressure measurement. Traditional gauges and diaphragm seals clog quickly and do not signal the pump to stop when a blockage is encountered, often damaging the pumps and other process equipment. Red Valve Pressure Sensors solve this problem with full-port openings and 360-degree sensing elements to ensure accurate pressure readings, regardless of conditions. Red Valve Pressure Sensors never plug or foul like traditional diaphragm seals on slurries.

Red Valve Pressure Sensors are used with pressure gauges and transmitters, sending signals to protect pumps from running dry.

Red Valve Pressure Sensors used for accurate reading of polymer feed system.
"Rely on Red" for a Total System Solution to Your Water and Wastewater Treatment Challenges

No other company can match Red Valve’s “Total System Solution” for water and wastewater treatment plants and municipal collection and distribution systems.

Since 1953, Red Valve has provided products for each phase of collection, distribution, separation, aeration, treatment and final discharge. Our complete product line provides customers with one source for on/off and control valves, check valves, pressure measurement, expansion compensation, air diffusers and effluent diffusers. All Red Valve products are designed for the rigors of handling raw sewage, sludge, scum and grit with abrasion-resistant, non-clogging solutions.

Call us today for a copy of our Municipal Collection and Distribution brochure.