

SMARTCHECK™

APCO CPC PUMP CONTROL VALVE

WITH INTEGRATED SWING CHECK AND ELECTRIC MOTOR OPERATOR

One Valve; Two Functions

The SmartCHECK Pump Control Valve combines the functionality of a full-featured pump control valve with the best features of APCO's CVS-6000 swing check valve. It is the valve you need when you want to control pressure surge during pump startup and shutdown, and close when the pump stops - even during a power outage. The electric motor actuator eliminates the need for hydraulic actuation providing the most economical solution, the lowest cost of ownership and the least maintenance. There are no pressurized hydraulic oil lines to leak, no solenoids or strainers to maintain, and no hydraulic power unit is required.

Versatile Design Suitable for Numerous Applications

SmartCHECK valves are ideal for applications in many industries, such as water, wastewater, mining and power. The SmartCHECK valve is suitable for numerous media types and applications, such as raw sewage, wastewater, dewatering, raw water, clean water or any fluid pumped through a pipeline.

Design & Construction

SmartCHECK Pump Control Valves are available in sizes 4-20". They are constructed of ASTM 536 ductile iron with 17-4 PH stainless steel shaft. The disc seat is durable Ultra High Molecular Weight Polyethylene (UHMW-PE) for extended life. The body seat is Type 316 stainless steel. Flanged ends are faced and drilled per ASME B16.1 class 125 or 250, ASME B16.42 class 150 or 300.



Pressure Balanced Design Always Reliable

At the heart of the SmartCHECK Pump Control Valve is an APCO CVS-6000 premium swing check valve. It is a true check valve with an internally pressure balanced design that will reliably close every time upon emergency flow reversal. Unlike piston or globe style pump control valves which can fail open on an emergency power failure because of their unbalanced designs, SmartCHECK closes reliably when needed. In addition, headloss-producing springs to assist closure are not necessary on the SmartCHECK valve and it can always be set to operate at its full open position without fear of 'sticking' open.

Lowest Energy Costs During Pumping

The AWWA C508 straight through Full Waterway Swing Check Design with a K-Factor less than or equal to 2.0 ensures that the SmartCHECK has much lower head loss than any valve in its class.

Unique Torque Unit Closes Valve Automatically Upon Power Loss

The secret to how this valve works is in its simple and unique torque unit. The torque unit allows the valve to function normally as a motorized pump control valve, except the valve closes automatically and without actuation upon power loss. If power is lost, SmartCHECK prevents damaging backflow, pump back spin, system drain back and flooding of the sump.



Available with Any Brand of Electric Motor Operator

Virtually any brand of multi-turn electric motor operator can be used to match your existing system. While normally operated electrically, a manual handwheel is included for operation in the event of power failure.

Operating Sequence

Normal Startup: As the pump motor starts, the SmartCHECK valve's electric motor actuator holds the valve in the closed position. The actuator is signaled to begin opening only after the pump is up to speed and pressure. The SmartCHECK valve's speed adjustment controls the rate at which the fluid accelerates to full velocity, minimizing pressure surges.

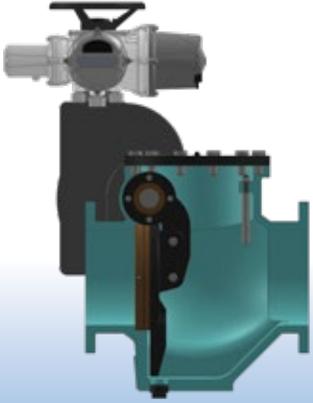
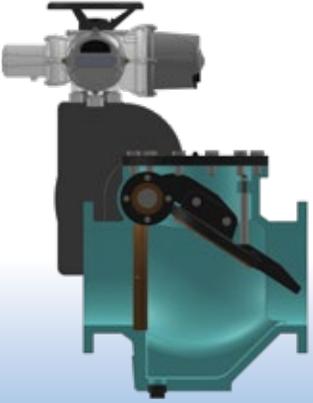
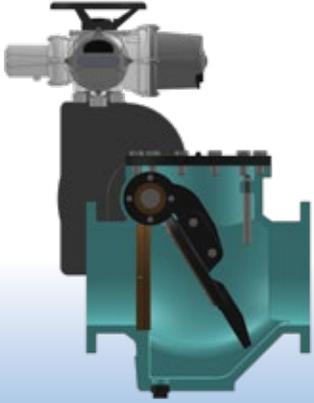
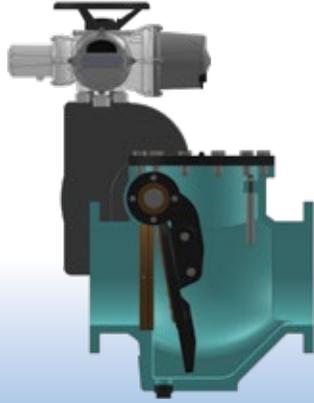
Pump Running: When the valve is in the open position at normal flow conditions, its full waterway produces very low headloss.

Normal Pump Shutdown: A pump stop command signals the SmartCHECK valve to close as the pump continues running. The SmartCHECK valve's actuator speed adjustment controls the rate at which the fluid decelerates, minimizing pressure surges and water column separation. A limit switch disengages the pump motor when the SmartCHECK valve is fully closed.

Power Outage or Pump Failure: In the event of a power outage, or any loss of pumping pressure, the SmartCHECK valve's disc will quickly close, preventing backflow. Because SmartCHECK is a swing check valve, the weight on the lever can adjust closure speed and an air cushion is included to minimize hard disc-to-seat contact. An optional oil-controlled bottom mounted buffer is used for 8-20" sizes when slamming is a concern.

Drain Valve: An optional hold-open feature is available which allows flow in the reverse direction to drain the system, backflush the pipeline or prime the pump. Draining can be accomplished with or without power.

Operation

Closed Position	Full Open Position	Opening or Closing	Optional Drain Back Feature
			
<p>The SmartCHECK valve's unique torque unit and motor actuator hold the valve closed during normal pump start up until the pump is up to speed and pressure.</p>	<p>When fully opened at normal flow conditions, the SmartCHECK valve provides a full waterway with very low headloss. During a power outage or loss of pump pressure, the built-in mechanical check valve closes quickly to prevent backflow.</p>	<p>The SmartCHECK valve's actuator speed adjustment controls the rate at which the fluid accelerates or decelerates during opening or closing, minimizing pressure surges and column separation.</p>	<p>If the pipeline needs to be drained or backflushed, the optional hold-open feature of the SmartCHECK valve can be set to allow flow in the reverse direction. This hold-open feature can be initiated either electrically or manually. The hold-open feature can also be used to prime the pump at start up.</p>

Pump and Control Valve Interface

The optional DeZURIK ECB Pump & Control Valve Interface is suggested to provide control between the pump and the SmartCHECK Pump Control Valve. The ECB Pump & Control Valve Interface is designed to start and stop the pumps and properly sequence the pump operation with the opening and closing of the pump control valve. In addition, it protects the pumping system from damage due to mechanical or power failure.



Sales and Service

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