DeZURIK

BULLETIN 6300.00-1
APRIL 2025

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 ensuring closure 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" (100-500mm). They are constructed of ASTM A536 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 316 Stainless Steel. Flanged ends are drilled per ASME B16.42 Class 150 or 300.

Unique Torque Unit Allows Valve To Close 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.

Pressure Balanced Design Always Reliable

At the heart of the SmartCHECK Pump Control Valve is an APCO CVS-6000 Swing Check Valve. It is a check valve featuring an internally pressure-balanced design, ensuring reliable closure upon emergency flow reversal. Piston and globe style pump control valves can fail in the open position during an emergency power failure due to their unbalanced designs. SmartCHECK features a balanced design, ensuring reliable closure when required. 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 Valve design with a K-Factor less than or equal to 1.0 ensures that the SmartCHECK has much lower head loss than any valve in its class.

Low Maintenance

SmartCheck is designed for easy servicing via a top-access cover. The seat can be inspected or replace without the need to remove the torque unit, motor, or the valve from the pipeline. In the event that removal of the torque unit and motor is necessary, the valve will continue to operate as an air-cushioned swing check valve.

Available with Any Brand of Electric Motor Operator

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 a 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.

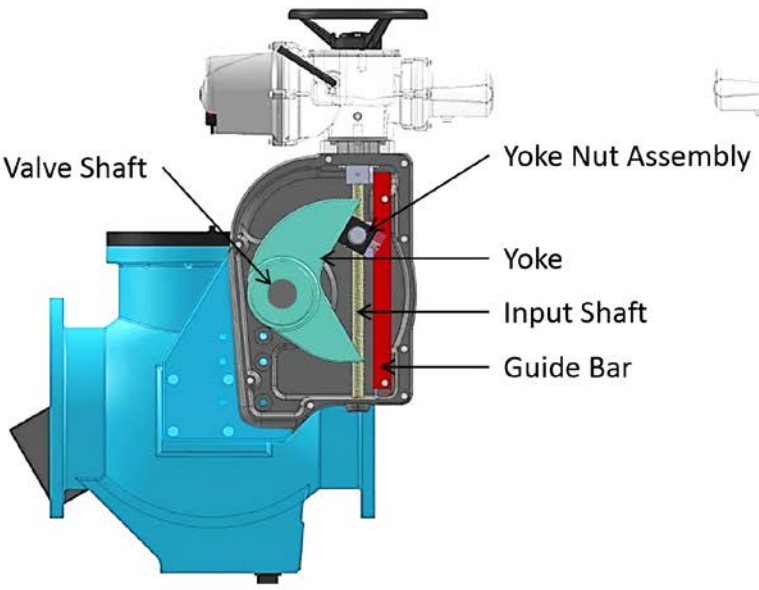
Normal Pump Shutdown: A pump stop command signals the SmartCHECK valve to close as the pump continues running. The SmartCHECK valve's actuator speed adjustment controls the rate at which the fluid decelerates, minimizing pressure surges and water column separation. A limit switch disengages the pump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

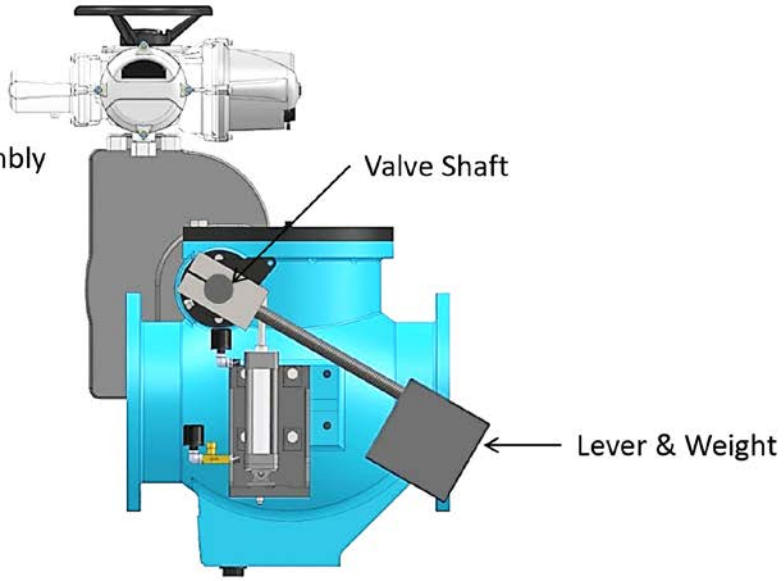
Power Outage or Pump Failure: In the event of a power outage, or any loss of pumping pressure, the SmartCHECK valve's disc will quickly close, preventing backflow. Because SmartCHECK is a swing check valve, the weight on the lever can adjust closure speed and an air cushion is included to minimize hard 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. Draining can be accomplished with or without power.

Components

Sizes 4-12" (100-300mm)





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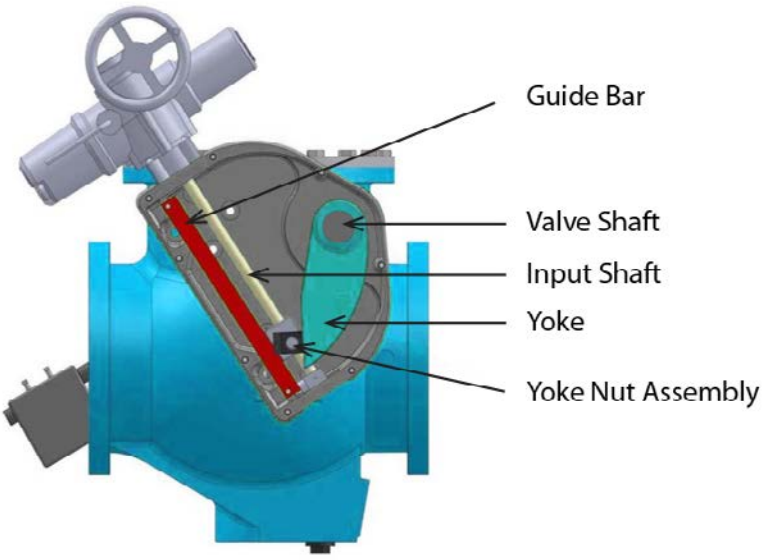
Sizes 14-20" (350-500mm)



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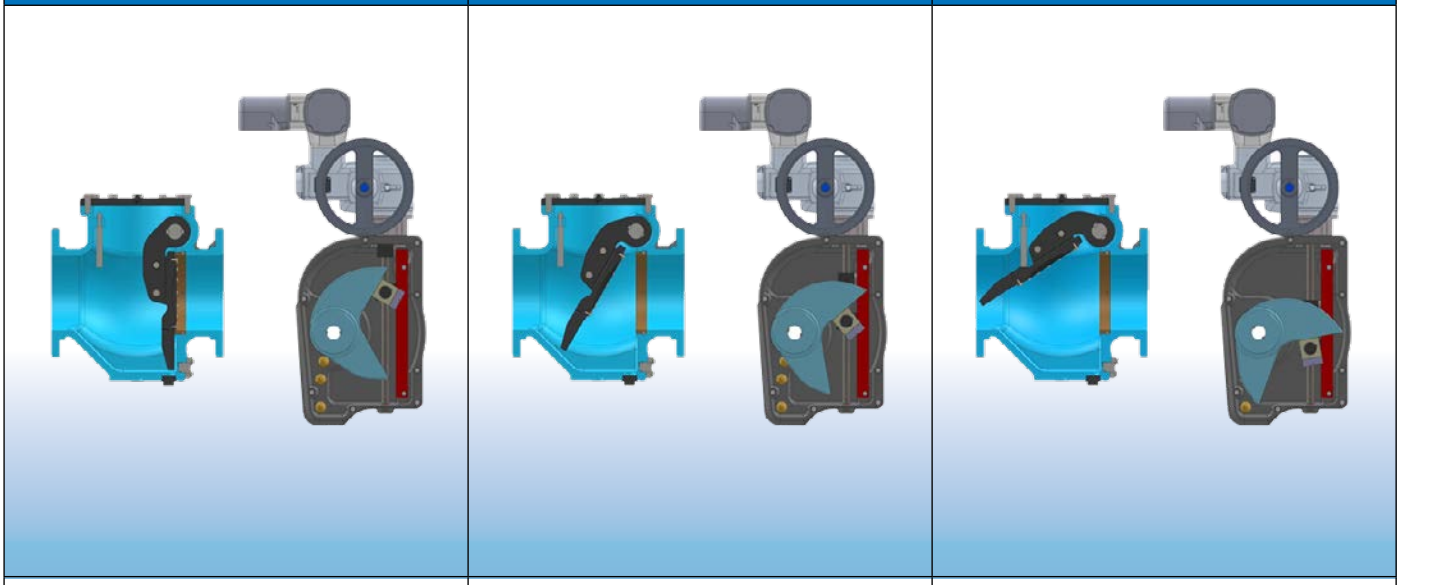
Torque Unit Operation

The yoke arm and yoke nut assembly of the torque unit are actuated by the motor via the threaded input shaft. As the yoke and nut assembly traverse along the input shaft, the valve disc motion is controlled by the yoke. The shaft connects the yoke arm to the lever & weight.

Operation

Closed Position	Opening or Closing	Full Open Position
		
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.	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 water column separation.	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.

Note: 4-12" (100-300mm) design shown above

Optional Drain Back Feature

If the pipeline needs to be drained, 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.

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. It is available in either solenoid operated or motor operated versions. In addition, it protects the pumping system from damage due to mechanical or power failure.

Ordering

Orders should specify quantity and order code identification, in proper sequence, as shown.

Valve Style
Give valve style code as follows:

CPC	=	SmartCHECK Pump Control Valve

Valve Size
Give valve size code as follows:

4	=	4"	(100mm)	14	=	14"	(350mm)
6	=	6"	(150mm)	16	=	16"	(400mm)
8	=	8"	(200mm)	18	=	18"	(450mm)
10	=	10"	(250mm)	20	=	20"	(500mm)
12	=	12"	(300mm)				

Body Style
Give body style code as follows:

6000MF	=	Series 6000MF, Multi-Function with (1) Mechanical Limit Switch DPDT AB 802T-DTP (SEL22)

End Connection
Give inlet connection code as follows:

F1	=	Flanged, ASME 125/150
F2	=	Flanged, ASME 250/300

Body Material
Give body material code as follows:

DI	=	Ductile Iron

Trim Combination
Disc Material
Give disc material code as follows:

DI	=	Ductile Iron

Shaft Material
Give shaft material code as follows:

S5	=	17-4PH Stainless Steel

Body Seat Material
Give body seat material code as follows:

S2	=	316 Stainless Steel

Disc Seat Material
Give disc seat material code as follows:

UHMW	=	Ultra High Molecular Weight Polyethylene

Operation Time
Give operating time code as follows:

TS	=	Operating Time in Seconds

Options
Give option code as follows:

DTR	=	DeZURIK Standard Certified Production Hydrostatic Shell & Seat Test Report
VP	=	Vertical Flow Up Position Installation
SB16	=	316 Stainless Steel Bolting
----	=	Special Coatings

Closure Control Devices
Give closure control device code as follows:

T1AC	=	T1 Torque Unit with Air Cushion Side Mounted Cylinder (Lever & Weight) (Sizes 4-12")
T2AC	=	T2 Torque Unit with Air Cushion Side Mounted Cylinder (Lever & Weight) (Sizes 14-20")
T1BMB	=	T1 Torque Unit with Oil Controlled Bottom Mounted Buffer (Sizes 8-12")
T2BMB	=	T2 Torque Unit with Oil Controlled Bottom Mounted Buffer (Sizes 14-20")

Motor Actuator
Contact DeZURIK

Accessories
Give accessories code as follows:

HOD1	=	Hold Open Device, Integrated with Electric Motor Actuator 4-12"
HOD2	=	Hold Open Device, Hydraulic Hand Pump located in the bottom of the Valve 14-20" (Available with T2BMB Closure Control Device only)

Ordering Example:

CPC,8,6000MF,F1,DI,DI-S5-S2-UHMW,TS*T1AC,HOD1*Motor Actuator

Operating Time is 120 Seconds from Closed to Open Position

Note: Maximum operating temperature is a function of the materials used in the valve. All valves are rated to a maximum temperature of at least 180° F (82° C). Contact application engineering if the valve is required to operate above this temperature.

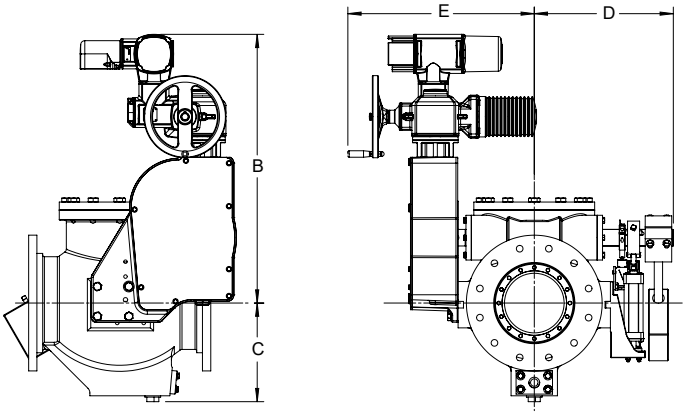
Dimensions

Torque Unit with Air Cushion Side Mounted Cylinder and Motor

4-12" (100-300mm)

Valve Size	B	C	D	E
4" 100mm	34.75 883	8.88 226	14.00 356	22.75 578
6" 150mm	36.00 914	7.50 190	17.00 432	25.13 638
8" 200mm	37.50 952	11.75 298	16.75 425	25.25 641
10" 250mm	37.50 952	14.13 359	21.00 533	26.75 679
12" 300mm	40.50 1029	15.50 394	22.00 559	28.25 718

Note: Dimensions "B" and "E" many vary depending on motor selection.

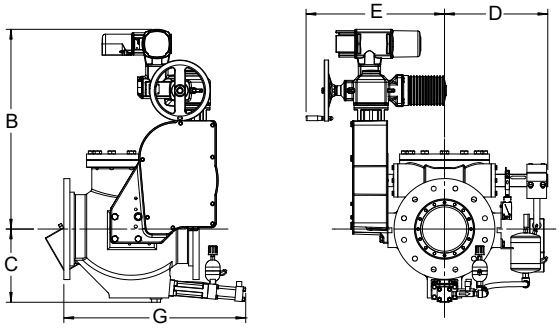


Torque Unit with Oil Controlled Bottom Mounted Buffer and Motor

8-12" (200-300mm)

Valve Size	B	C	D	E	G
8" 200mm	37.50 952	11.75 298	16.75 425	25.25 641	28.00 711
10" 250mm	37.50 952	14.13 359	21.00 533	26.75 679	33.50 851
12" 300mm	40.50 1029	15.50 394	22.00 559	28.25 718	42.00 1067

Note: Dimensions "B" and "E" many vary depending on motor selection.

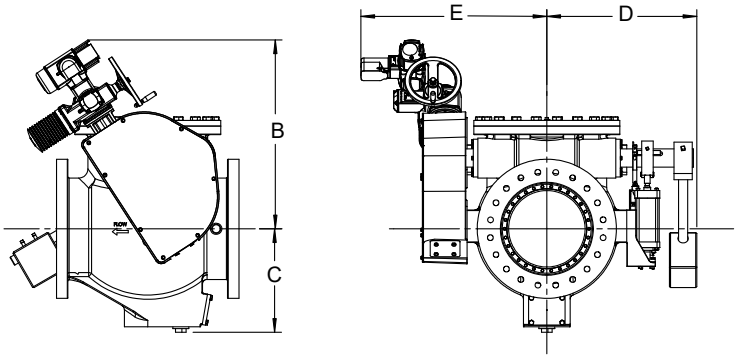


Torque Unit with Air Cushion Side Mounted Cylinder and Motor

14-20" (350-500mm)

Valve Size	B	C	D	E
14" 350mm	37.75 959	17.25 438	26.00 660	37.00 940
16" 400mm	39.00 991	21.25 540	27.50 698	37.88 962
18" 450mm	40.50 1029	21.75 552	29.00 737	39.30 998
20" 500mm	41.50 1054	23.00 584	32.00 813	40.88 1038

Note: Dimensions "B" and "E" many vary depending on motor selection.

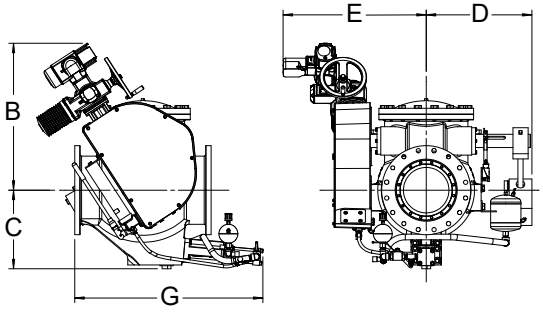


Torque Unit with Oil Controlled Bottom Mounted Buffer, Hold Open Device and Motor

14-20" (350-500mm)

Valve Size	B	C	D	E	G
14" 350mm	37.75 959	17.25 438	26.00 660	37.00 940	48.00 1219
16" 400mm	39.00 991	21.25 540	27.50 698	37.88 962	50.00 1270
18" 450mm	40.50 1029	21.75 552	29.00 737	39.30 998	56.00 1422
20" 500mm	41.50 1054	23.00 584	32.00 813	40.88 1038	60.00 1524

Note: Dimensions "B" and "E" many vary depending on motor selection.



Sales and Service

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