

# **Q-VAC**

**AUTOMATIC PRIMING SYSTEMS**



## **HCPV Series**

### **High Capacity Priming Valves**

## **Innovative Air Valve Technology**

Q-VAC's new HCPV series multi-stage priming valve introduces an innovative concept in air valve technology. Proven with extensive field experience in tough applications, the HCPV valve has demonstrated improved performance, reduced maintenance and lower cost for overall reliability on high volume applications such as siphon systems and large priming applications.

The HCPV Priming Valve is a high capacity single body valve available in standard sizes from 1-4" NPT. Larger sizes and inlet flange connections are available upon request.

## **High Flow Design**

The equal size inlet and outlet area of the HCPV valve fully meets the defined requirement of AWWA C-512 providing high capacity and a broad operating range. More importantly, the area of the large internal orifice is equal to or greater than the area of the outlet port thereby eliminating internal flow restrictions.

## **Unique, Multi-Stage Operation**

The unique air release design provides varied and predictable air flow over a wide range of flow conditions. A large diameter sealing disc provides unrestricted high volume air flow for rapid air removal during initial priming. During normal operating conditions, the dual-range air release design continuously removes smaller amounts of air to maintain prime.

## **All Stainless Steel Construction**

The HCPV Priming Valve is ideally suited to corrosive conditions with a 316 Stainless Steel body and float. Internal parts are corrosion resistant high strength stainless steel.

## **Meets AWWA C-512**

### **Performance Specifications**

The HCPV Priming Valve meets performance requirements of the AWWA C-512 standard "Air Valves for Water & Wastewater Service."



## **Light Weight, Low Profile Body**

The compact design of the HCPV Priming Valve allows installation in piping systems with limited space and in vaults with low ceiling heights. Fabricated HCPV construction meets full pressure class ratings and minimizes weight for ease of installation and for retrofit replacement of other air valves.



### **Reliability Without Constant Maintenance**

The clean interior design and the direct shaft mounted float eliminates troublesome linkages that can lead to frequent maintenance. The light weight, one-piece internal assembly can be easily lifted out of the valve body by the top cover.

The shape of the upper valve body creates an air compression chamber to limit fluid level and solids interference. The funnel shaped lower body reduces solids buildup on sewage or other services where solids may interfere with operation, yet it still allows for maximum outflow and self-cleaning.

For applications where standard practice calls for periodic maintenance, back flush ports are strategically located for ease of flushing with an optional back flush kit.

### **For Industrial Wastewater Service**

All materials and seals are proven as long life components for continuous duty service. Seals and all parts are suitable for use on industrial wastewater media containing hydrocarbons, chemicals, solvents and volatiles. Recommendations available on application.

### **Larger Sizes, Higher Pressures**

Contact Q-VAC for information and recommendations.

### **Float Shape Designed for Stability**

The unique float shape reduces the ballistic effect of high speed liquid flow into the valve, further adding to float stability. The float shaft is fully guided to provide smooth, long lasting operation.

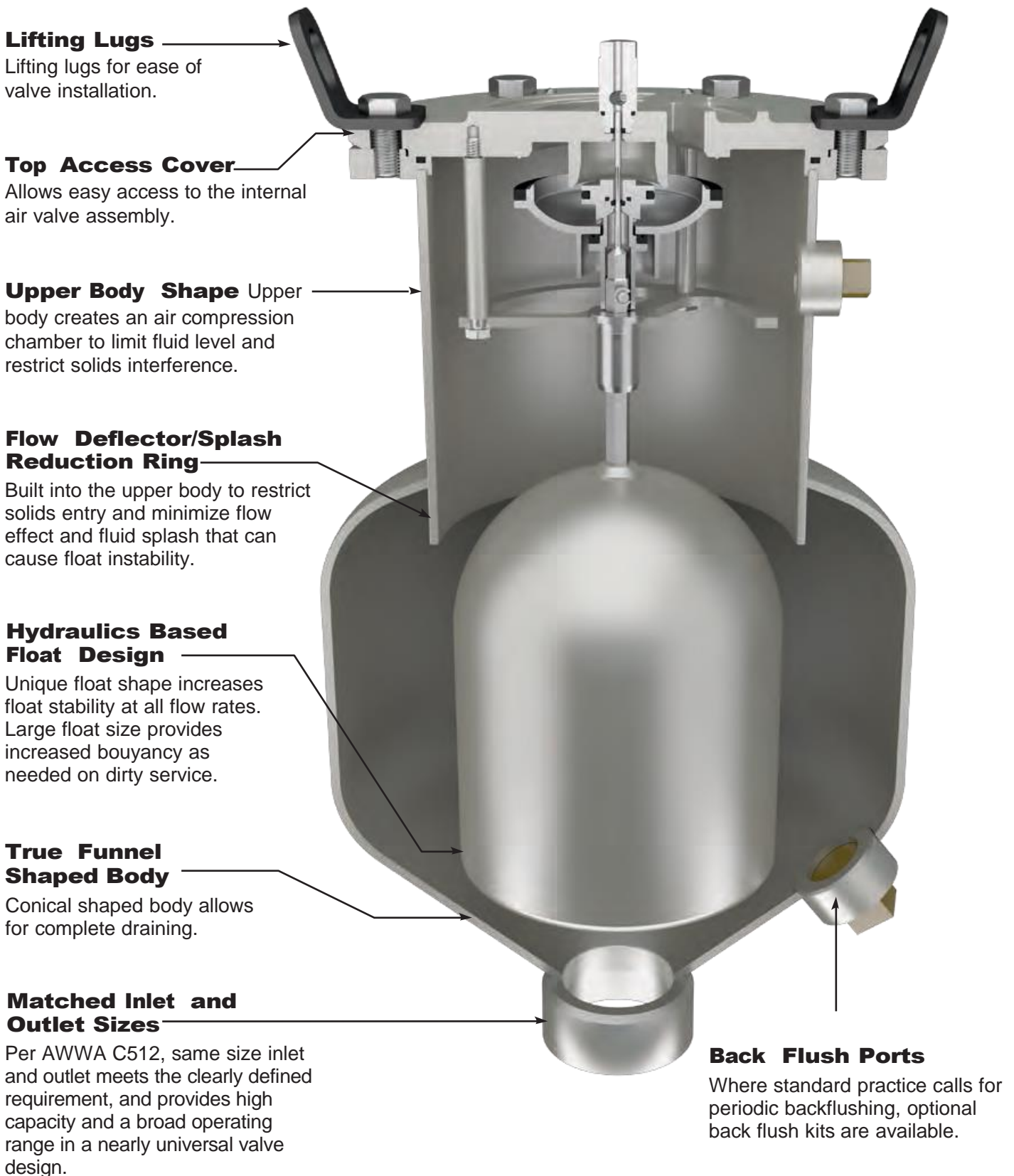
### **No Troublesome Linkage**

Unique disc air release venting concept eliminates linkages that can foul on dirty service applications.



# Problem Solving Design for Improved Performance & Reliability in Dirty Service Applications

Innovative air release technology provides improved valve performance and operating capability with characteristics specifically designed to deal with the presence of grit, solids and grease.



**Lifting Lugs**  
Lifting lugs for ease of valve installation.

**Top Access Cover**  
Allows easy access to the internal air valve assembly.

**Upper Body Shape** Upper body creates an air compression chamber to limit fluid level and restrict solids interference.

**Flow Deflector/Splash Reduction Ring**  
Built into the upper body to restrict solids entry and minimize flow effect and fluid splash that can cause float instability.

**Hydraulics Based Float Design**  
Unique float shape increases float stability at all flow rates. Large float size provides increased bouyancy as needed on dirty service.

**True Funnel Shaped Body**  
Conical shaped body allows for complete draining.

**Matched Inlet and Outlet Sizes**  
Per AWWA C512, same size inlet and outlet meets the clearly defined requirement, and provides high capacity and a broad operating range in a nearly universal valve design.

**Back Flush Ports**  
Where standard practice calls for periodic backflushing, optional back flush kits are available.

## Multi-Stage Operation Provides Dual-Range Air Release

### High Capacity Multi-Stage Operation

Features high capacity air venting and inflow during initial priming; dual range air release during normal pipeline flow conditions.

### Air/Vacuum Disc

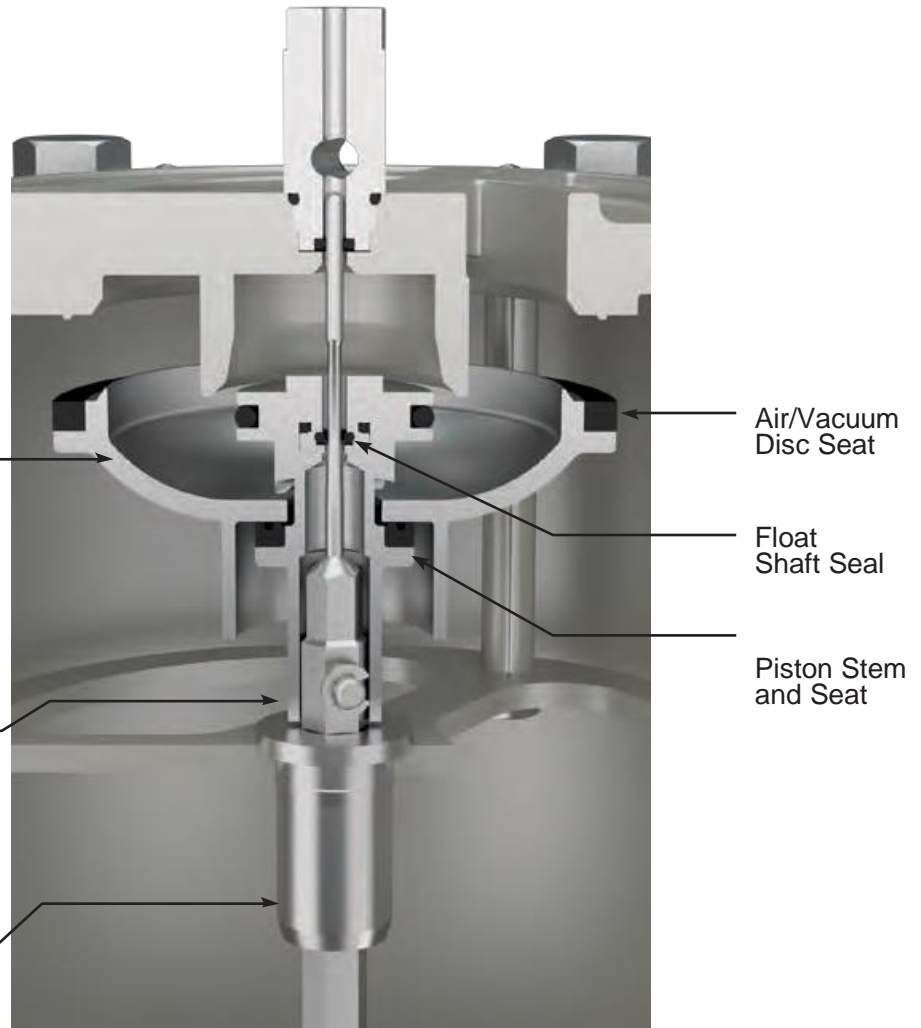
The unique Air/Vacuum Disc opens to assure high flow air removal during initial priming

### No Troublesome Linkage

The internal design of the HCPV valve eliminates troublesome linkage that can trap solids and interfere operation and affect reliability

### Guided Float Shaft

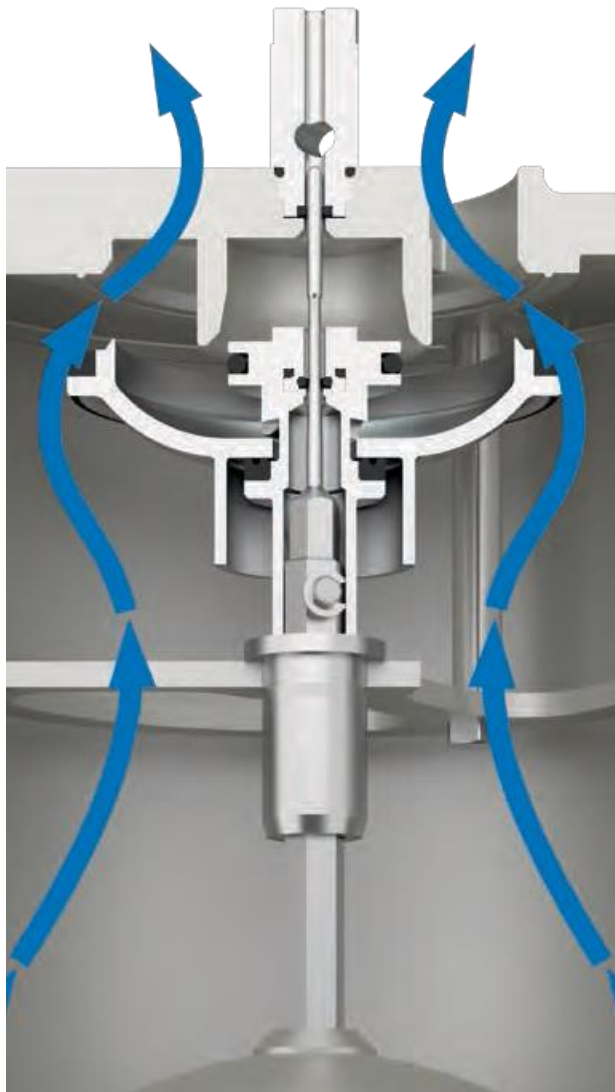
The float shaft is fully guided to provide smooth, long-life operation. Guides prevent float misalignment and contact with the valve body.



## Valve Operation

**Unique Combination Air Valve Technology** The patent pending design of the HCPV Priming Valve features multi-stage air release for high, medium, and low air flow conditions.

### High Air Flow: Initial Priming



### High Flow Position

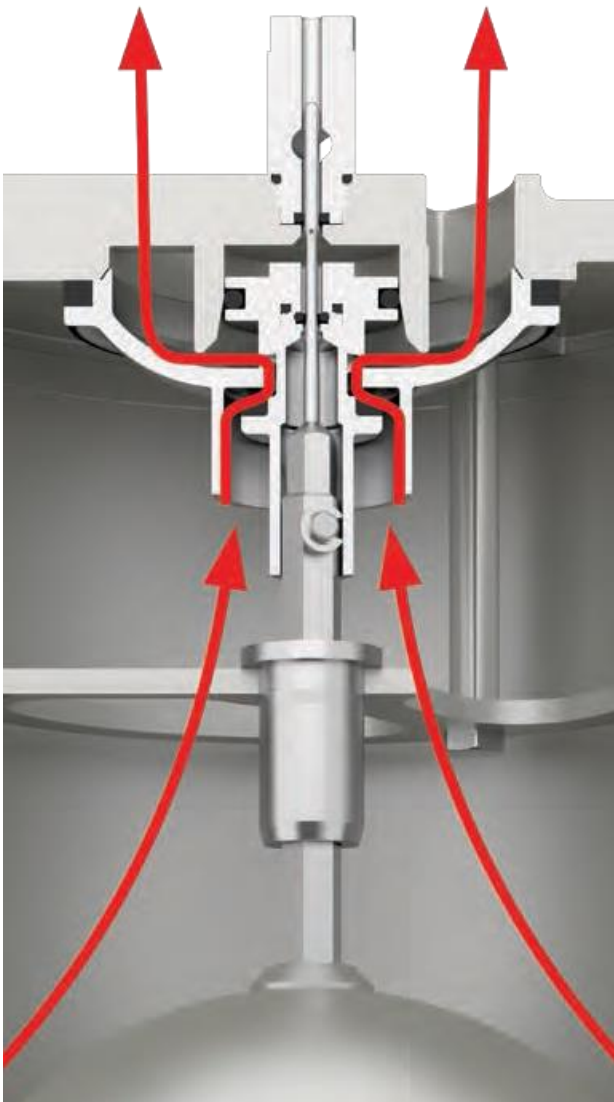


During initial priming, when the valve needs to pass the most air flow, the large sealing disc is fully open to allow large volumes of air to be evacuated by the priming system.

This feature allows the use of only one priming valve to handle the flow rate that used to require multiple valves due to their small internal orifices.

# Valve Operation

## Medium Air Flow: Normal Operation



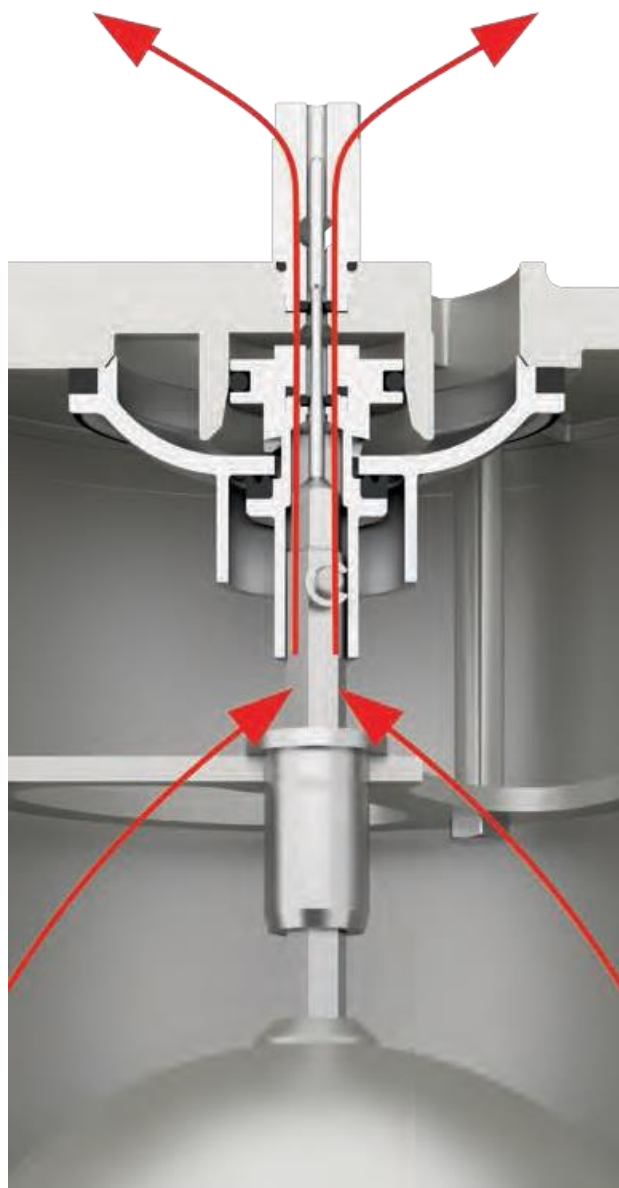
## Medium Flow Position



Once the valve is partially filled with water, and the float has been raised inside the valve body, the large sealing disc will close but air can continue to be removed through the smaller orifice of the piston chamber.

## Valve Operation

### Low Air Flow: Normal Operation



**Low Flow  
Position**



**Closed  
Position**



As water continues to rise inside the valve body, which raises the float and float shaft, the piston chamber will seal closed. Any air that remains inside the valve will then be evacuated past the shaft seals of the float. This operation will continue until the float rises fully which will completely seal all pathways through the valve.

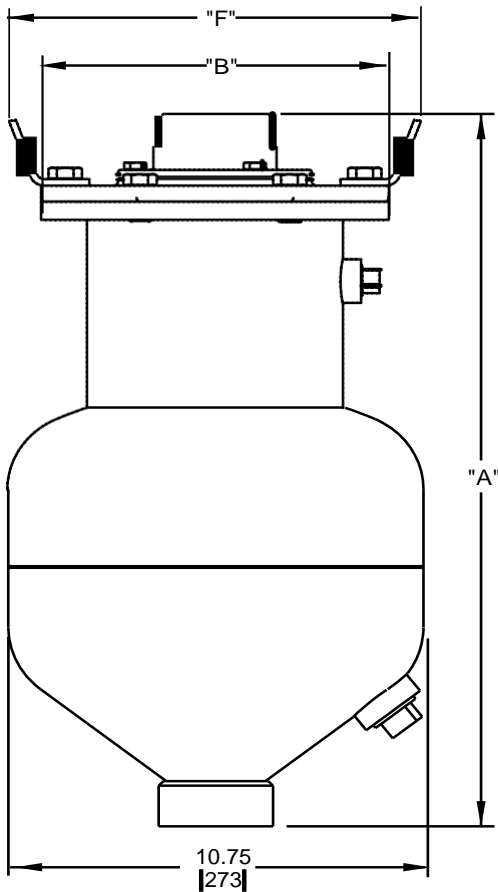
During normal system operation, air will escape from the water, collect at high points in the pipeline, and enter the valve. When enough air collects in the valve, it will cause the float and float shaft to move down. In this minimal air release mode, the float position allows the valve to release a small amount of air past the float shaft seals. The released air is replaced by water entering the valve's inlet, raising the float to the valve's fully closed position.



## Dimensions

Valve	Inlet Size	Outlet Size	Dim A In (mm)	Dim B In (mm)	Dim F In (mm)	Weight Lbs (kg)
HCPV-120	2" NPT	1" NPT	19.70 (500)	9.00 (229)	10.70 (272)	43.0 (19.5)
HCPV-200	2" NPT	2" NPT	19.70 (500)	9.00 (229)	10.70 (272)	42.5 (19.0)
HCPV-300	3" NPT	3" NPT	21.28 (541)	9.69 (246)	11.46 (291)	51.0 (23.0)
HCPV-400	4" NPT	4" NPT	21.28 (541)	9.69 (246)	11.46 (291)	49.0 (22.0)

Note: A flanged inlet is an available option.



# Q-VAC

AUTOMATIC PRIMING SYSTEMS



## **The Comprehensive Source for Priming**

Q-VAC offers a full range of standard designs, a wide spectrum of performance levels, multiple vacuum technologies, and a complete assortment of options and priming accessories. As your leading source, Q-VAC Automatic Priming Systems are engineered to provide the highest level of quality, performance, convenience, and value. Our manufacturing capabilities, expertise, attention to detail, and service are unmatched in the industry.



**Combined Fluid Products Company** • 805 Oakwood Road • Lake Zurich, IL 60047 • USA  
US Toll Free: (800) 521-2083 • Phone: +1 (847) 540-0054 • Fax: +1 (847) 540-0513  
Email: [experts@vacuumprimingsystems.com](mailto:experts@vacuumprimingsystems.com) • Website: [www.vacuumprimingsystems.com](http://www.vacuumprimingsystems.com)