

PRIMARY FLUID SYSTEMS INC.

1050 Cooke Blvd., Burlington, ON. Canada, L7T 4A8 Tel: (905)333-8743 Fax: (905)333-8746

Toll-Free: 1-800-776-6580 www.primaryfluid.com primary@primaryfluid.com

Product Engineering Guide

For up-to-date product literature, including 2D drawings and 3D models, please consult our website:

www.EcoValve.com.cn

TABLE OF CONTENTS

Introduction	3
ECO VALVE – Back Pressure Valve	4
ECO VALVE – High Pressure Back Pressure Valve	5
ECO VALVE – High Temperature Back Pressure Valve	6
CLEARVIEW – Polypropylene Calibration Cylinders	7
CLEARVIEW - PVC Calibration Cylinders	8
CLEARVIEW - Glass Calibration Cylinders	9
CLEARVIEW - CVG#2 Calibration Cylinders	10
CLEARVIEW - CVG#2 Calibration Cylinders	11
CLEARVIEW - CVG#2 Calibration Cylinders	12
CLEARVIEW - CVG#2 Calibration Cylinders	13
CLEARVIEW - CVG#2 Calibration Cylinders	14
ACCUPULSE – Pulsation Dampeners	15
ACCUGAUGE - Gauge with Diaphragm Isolators	. 16
PFS INJECTION QUILLS - Female x Male	. 17
CS CORPORATION STOPS	. 18
PFS RETRACTABLE CORPORATION STOPS	. 19
ACCUVENT - Automatic Degassing Valve	. 20
Typical Installation	21



PRIMARY FLUID SYSTEMS INC.

1050 COOKE BLVD., BURLINGTON, ON. CANADA L7T 4A8 TEL:(905)333-8743 FAX:(905)333-8746

1-800-776-6580 www.primaryfluid.com primary@primaryfluid.com

Primary Fluid Systems Inc. is a leading manufacturer of metering pump accessories, with applications in the water & wastewater treatment industries, as well as oil & gas, agricultural, pharmaceutical, and food & beverage. In twenty years, Primary Fluid Systems has expanded its customer base across the globe, with regular customers in the United States, Australia, United Kingdom, Norway, and the United Arab Emirates.

Our Eco Valve line of products reflects our constant innovation within these industries. This line exists to improve upon traditional industry designs while providing unmatched quality. Created with your system in mind, the Eco Valve line of products provides customizability based on your project needs, as well as simplicity for the systems operator.

PFS always welcomes requests for custom products in order to better meet the needs of our customers. With 70+ years combined experience in this industry, our sales team can always find a solution to your technical problem.

Our products are certified to a variety of standards, including Canadian Registration Number (CRN) and CE Marking.

Primary Fluid Systems is the one-stop shop for all your metering pump accessory needs.

For more information on our products, including literature, dimensional drawings, and 3D models, please visit our website: www.EcoValve.com.cn



ECO VALVE - Back Pressure & Pressure Relief Valve

General

The EcoValve can be installed as either a back pressure control or off-line pressure relief valve, and has a unique in-line diaphragm-style seat design to help prevent air locking and siphoning. The valve shall have an adjustable pressure range of 7 to 150 PSIG @ 70°F (21°C). The adjustment bolt shall have a set length to prevent the nickel plated spring from binding. The valve shall have colour-coded bolt caps to allow for easy size identification. The valve shall be factory set at 50 PSIG with a locking nut, and shall be available with a variety of diaphragm materials. The valve body and top shall be available in a variety of non-metallic or metallic materials to suit application. Valves shall be available with connection sizes from ¼" to 4" and be available in various connection styles, including True Union (thermoplastics only). The valve shall be available with optional ¼" gauge port on either side of the valve. The valves are available with a 3-year limited warranty. European CE marking is not required for this product.

As manufactured by Primary Fluid Systems Inc.

Optional Features

- Optional 1/4" gauge port, located on the side of the valve for straightforward pressure reading
- Connections of NPT or BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.





For downloadable **2D and 3D CAD models** of our EcoValve products, please visit: *www.ecovalve.com.cn*

For a guide to our EcoValve drawings, please visit: http://www.ecovalve.com.cn/pdf/new/choosing-your-eco-valve-drawing.pdf

ECO VALVE - High Pressure Back Pressure & Pressure Relief Valve

General

The EcoValve can be installed as either a back pressure control or off-line pressure relief valve, and has a unique in-line diaphragm-style seat design to help prevent air locking and siphoning. The valve shall have an adjustable pressure range from 50 to 350 PSIG for metallic models, and an adjustable pressure range up to 232 PSIG for thermoplastic models. The adjustment bolt shall have a set length to prevent the nickel plated spring from binding. The valve shall have colour-coded bolt caps to allow for easy size identification. The valve shall be factory set at 100 PSIG with a locking nut, and shall be available with a variety of diaphragm materials. The valve body and top shall be available in a variety of non-metallic or metallic materials to suit application. Valves shall be available with connection sizes from ¼" to 4" and be available in various connection styles, including True Union (thermoplastics only). The valve shall be available with optional ¼" gauge port on either side of the valve. The valves are available with a 3-year limited warranty. European CE marking is not required for this product.

As manufactured by Primary Fluid Systems Inc.

Optional Features

- Optional 1/4" gauge port, located on the side of the valve for straightforward pressure reading
- Other metallic materials for Top available upon request
- Connections of NPT or BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.





For downloadable **2D and 3D CAD models** of our EcoValve products, please visit: *www.ecovalve.com.cn*

For a guide to our EcoValve drawings, please visit: http://www.ecovalve.com.cn/pdf/new/choosing-your-eco-valve-drawing.pdf

ECO VALVE - High Temperature Back Pressure & Pressure Relief Valve

General

The EcoValve can be installed as either a back pressure control or off-line pressure relief valve, and has a unique in-line diaphragm-style seat design to help prevent air locking and siphoning. The valve shall have an adjustable pressure range of 7 to 150 PSIG. They will have a standard maximum temperature of 350°F (177°C) with S/S / HastC / Alloy bodies only. The adjustment bolt shall have a set length to prevent the nickel plated spring from binding. The valve shall have colour-coded bolt caps to allow for easy size identification. The valve shall be factory set at 50 PSIG with a locking nut, and shall be available with a variety of diaphragm materials. The valve body and top shall be available in a variety of non-metallic or metallic materials to suit application. Valves shall be available with connection sizes from ¼" to 4" and be available in various connection styles, including True Union (thermoplastics only). The valve shall be available with optional ¼" gauge port on either side of the valve. The valves are available with a 3-year limited warranty. European CE marking is not required for this product.

As manufactured by Primary Fluid Systems Inc.

Optional Features

- Optional 1/4" gauge port, located on the side of the valve for straightforward pressure reading
- Other metallic materials for Top available upon request
- Connections of NPT or BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.





For downloadable **2D and 3D CAD models** of our EcoValve products, please visit: *www.ecovalve.com.cn*

For a guide to our EcoValve drawings, please visit: http://www.ecovalve.com.cn/pdf/new/choosing-your-eco-valve-drawing.pdf

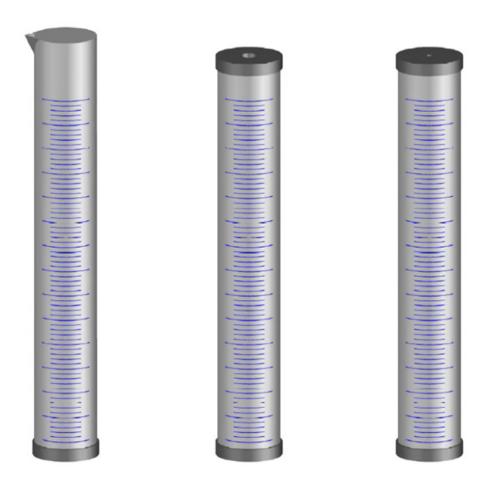
CLEARVIEW - Polypropylene Calibration Cylinders

General

The calibration cylinder shall be manufactured from highly-translucent polypropylene (PP) material for exceptional clarity. Graduations shall be indicated by easy-to-read, blue printing with a PP coating to ensure ink lettering is chemical resistant and designed to meet ISO 6706. The cylinders shall be shatter resistant, which minimizes breakage and the potential for injury. The cylinder shall be chemically resistant to most acids, bases, and many commonly used solvents. The calibration cylinder shall be available with threaded, socket, or flange end cap connections. All connections will be manufactured from PP material. The top will be available in the following styles: pouring spout, threaded, removable vented dust cap, socket or flanged. The calibration cylinders are leak tested. Cylinders are non-pressurized vessels (max 15 PSIG). As manufactured by Primary Fluid Systems Inc.

Optional Features

End cap connections of BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.



For downloadable **3D CAD models** of our Clearview PP calibration cylinders, please visit: http://ecovalve.com.cn/clearview-calibration-cylinders-downloads.html

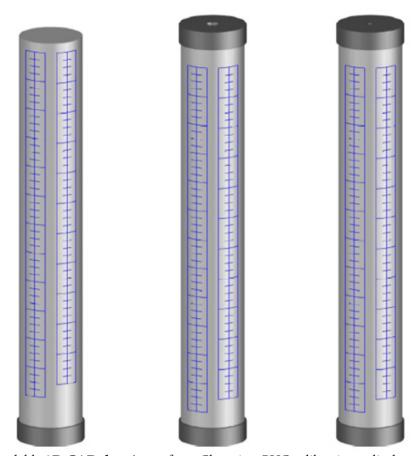
General

The calibration cylinder shall be manufactured from highly-translucent polyvinyl chloride (PVC) material and assembled with CPVC cement ASTM F493 (a substance approved for chemical applications). The tube shall be made from extruded PVC tube, offering superior compact design and translucent performance. Graduations shall be indicated by easy-to-read, imprinted, white lettering with PP coating to ensure chemical resistance. Graduations shall have dual-scale USGPH and mL unit markings with ascending and descending increments. The calibration cylinder shall be available with end cap style options of threaded, socket, or flange. Calibration cylinders with the removable top-end caps (CV#4) shall be available for convenient cleaning of the cylinder and include a highly-visible PP float to improve visual graduation indication. Cylinders are non-pressurized vessels (max 15 PSIG).

As manufactured by Primary Fluid Systems Inc.

Optional Features

- End cap connections of BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.
- Highly-visible float for CV#1 and CV#3 products.



For downloadable **2D CAD drawings** of our Clearview PVC calibration cylinders, please visit: http://ecovalve.com.cn/clearview-pvc-calibration-cylinders-downloads.html
For downloadable **3D CAD models** of our Clearview PVC calibration cylinders, please visit: http://www.primaryfluid.com/eco-valve-drawings-request.htm

CLEARVIEW - Glass Calibration Cylinders

General

The calibration cylinder shall be manufactured with a borosilicate glass cylinder and include a sealed polycarbonate or acrylic safety shield to protect the glass from breakage. The shield also serves as a secondary containment against spillage. Graduations shall be baked onto the glass as easy-to-read, imprinted, white markings (in mL graduations). The Clearview cylinder is assembled with a non-wetted Buna O-ring and a threaded union style connection which is sealed with a wetted O-ring (available in a variety of elastomers). The wetted connection shall be available in non-metallic or metallic materials and be available in industry standard connection styles and sizes. Each cylinder is tested against leakage. Cylinders are non-pressurized vessels (max 15 PSIG).

As manufactured by Primary Fluid Systems Inc.

Optional Features

- End cap connections of BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.
- Union nut made of CPVC, PP, PVDF.



For downloadable **2D CAD drawings** of our Clearview glass calibration cylinders, please visit: http://www.ecovalve.com.cn/clearview-glass-calibration-cylinders-2d-drawings.html
For downloadable **3D CAD models** of our Clearview glass calibration cylinders, please visit: http://www.primaryfluid.com/eco-valve-drawings-request.htm

(Glass and PVDF Construction)

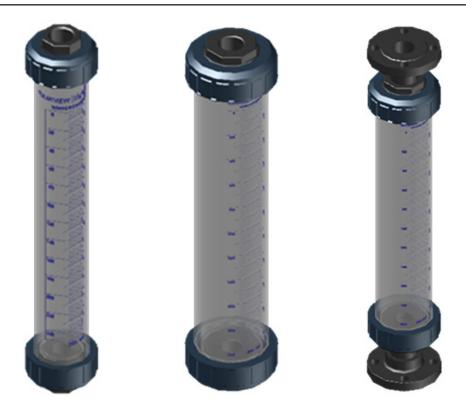
General

The Calibration Cylinder shall be manufactured from highly-translucent and durable polycarbonate outer shield, and a tempered glass inner calibrated cylinder. The polycarbonate shield shall be UV-protected and act as a temporary secondary containment area. Graduations shall be easy-to-read imprinted blue markings (in mL graduations), baked onto the glass surface, which ensures the ink markings are chemical resistance. The calibration cylinder shall be manufactured standard with end cap connections of NPT (Female), but optional connection types are listed below. Viton O-rings will be used as standard for sealing the graduated glass cylinder, and Buna-N O-rings will be used for sealing the polycarbonate shield. The unit will be secured using threaded stainless steel rods, which facilitates disassembly for cleaning. Each cylinder will be tested against leakage.

As manufactured by Primary Fluid Systems Inc., to ISO 6706.

Optional Features

- End cap connections of BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.
- Optional materials for o-rings include EPDM, PTFE, and Kalrez.



For downloadable **2D CAD drawings** of our Clearview glass calibration cylinders, please visit: http://www.ecovalve.com.cn/clearview-glass-calibration-cylinders-2d-drawings.html

(Glass and Corzan® CPVC Construction)

General

The Calibration Cylinder shall be manufactured from highly-translucent and durable polycarbonate outer shield, and a tempered glass inner calibrated cylinder. The polycarbonate shield shall be UV-protected and act as a temporary secondary containment area. Graduations shall be easy-to- read imprinted blue markings (in mL graduations), baked onto the glass surface, which ensures the ink markings are chemical resistance. The calibration cylinder shall be manufactured standard with end cap connections of NPT (Female), though optional connection types are listed below. Viton O-rings will be used as standard for sealing the graduated glass cylinder, and Buna-N O-rings will be used for sealing the polycarbonate shield. The unit will be secured using threaded stainless steel rods, which facilitates disassembly for cleaning. Each cylinder will be tested against leakage.

As manufactured by Primary Fluid Systems Inc., to ISO 6706.

Optional Features

- End cap connections of BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.
- Optional materials for o-rings include EPDM, PTFE, and Kalrez.



For downloadable **2D CAD drawings** of our Clearview glass calibration cylinders, please visit: http://www.ecovalve.com.cn/clearview-glass-calibration-cylinders-2d-drawings.html

(Glass and PVC Construction)

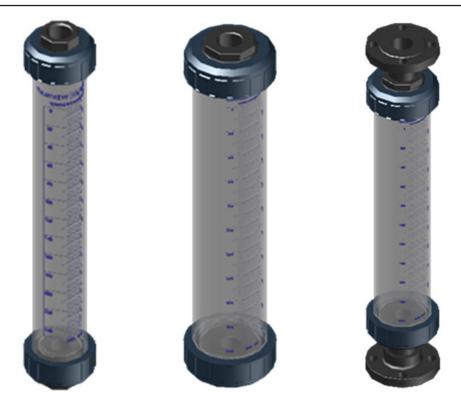
General

The Calibration Cylinder shall be manufactured from highly-translucent and durable polycarbonate outer shield, and a tempered glass inner calibrated cylinder. The polycarbonate shield shall be UV-protected and act as a temporary secondary containment area. Graduations shall be easy-to- read imprinted blue markings (in mL graduations), baked onto the glass surface, which ensures the ink markings are chemical resistance. The calibration cylinder shall be manufactured standard with end cap connections of NPT (Female), though optional connection types are listed below. Viton O-rings will be used as standard for sealing the graduated glass cylinder, and Buna-N O-rings will be used for sealing the polycarbonate shield. The unit will be secured using threaded stainless steel rods, which facilitates disassembly for cleaning. Each cylinder will be tested against leakage.

As manufactured by Primary Fluid Systems Inc., to ISO 6706.

Optional Features

- End cap connections of BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.
- Optional materials for o-rings include EPDM, PTFE, and Kalrez.



For downloadable **2D CAD drawings** of our Clearview glass calibration cylinders, please visit: http://www.ecovalve.com.cn/clearview-glass-calibration-cylinders-2d-drawings.html

(Glass and PP Construction)

General

The Calibration Cylinder shall be manufactured from highly-translucent and durable polycarbonate outer shield, and a tempered glass inner calibrated cylinder. The polycarbonate shield shall be UV-protected and act as a temporary secondary containment area. Graduations shall be easy-to- read imprinted blue markings (in mL graduations), baked onto the glass surface, which ensures the ink markings are chemical resistance. The calibration cylinder shall be manufactured standard with end cap connections of NPT (Female), though optional connection types are listed below. Viton O-rings will be used as standard for sealing the graduated glass cylinder, and Buna-N O-rings will be used for sealing the polycarbonate shield. The unit will be secured using threaded stainless steel rods, which facilitates disassembly for cleaning. Each cylinder will be tested against leakage.

As manufactured by Primary Fluid Systems Inc., to ISO 6706.

Optional Features

- End cap connections of BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.
- Optional materials for o-rings include EPDM, PTFE, and Kalrez.



For downloadable **2D CAD drawings** of our Clearview glass calibration cylinders, please visit: http://www.ecovalve.com.cn/clearview-glass-calibration-cylinders-2d-drawings.html

(Glass and 316 Stainless Steel Construction)

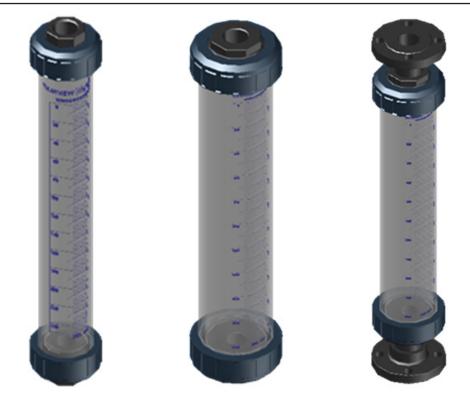
General

The Calibration Cylinder shall be manufactured from highly-translucent and durable polycarbonate outer shield, and a tempered glass inner calibrated cylinder. The polycarbonate shield shall be UV-protected and act as a temporary secondary containment area. Graduations shall be easy-to- read imprinted blue markings (in mL graduations), baked onto the glass surface, which ensures the ink markings are chemical resistance. The calibration cylinder shall be manufactured standard with end cap connections of NPT (Female), though optional connection types are listed below. Viton O-rings will be used as standard for sealing the graduated glass cylinder, and Buna-N O-rings will be used for sealing the polycarbonate shield. The unit will be secured using threaded stainless steel rods, which facilitates disassembly for cleaning. Each cylinder will be tested against leakage.

As manufactured by Primary Fluid Systems Inc., to ISO 6706.

Optional Features

- End cap connections of BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.
- Optional materials for o-rings include EPDM, PTFE, and Kalrez.



For downloadable **2D CAD drawings** of our Clearview glass calibration cylinders, please visit: http://www.ecovalve.com.cn/clearview-glass-calibration-cylinders-2d-drawings.html

ACCUPULSE - Pulsation Dampeners

General

The Pulsation Dampener shall be a hydropneumatic, bladder-type that is oriented vertically. The pulsation dampener shall be constructed with two chambers – a fluid chamber and a pressure chamber, separated by an elastomeric bladder. The two chambers shall be secured with metal bolts on all metal units. API plastic units shall be secured with metal bolts or threaded. APII and APIII plastic units shall be secured using a ring flange. The dampener shall be designed with a minimum safety factor of 4:1 burst pressure to maximum working pressure. The pulsation dampener shall be capable of handling the pump's maximum stroke volume. The dampener shall be available with a bottom NPT (Female) connection, but optional connection types are listed below. Pulsation dampener shall be fitted with an automotive-type gas fill valve with high- pressure core and cap. Also, the pulsation dampener shall be fitted with a pressure gauge. As supplied by Primary Fluid Systems Inc.

Optional Features

- Canadian Registration Number (CRN) available on Stainless Steel models.
- Connections of BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.



For downloadable **2D CAD drawings** of our AccuPulse products, please visit: http://www.ecovalve.com.cn/accupulse_CAD_Drawings.html

For downloadable **3D CAD models** of our AccuPulse products, please visit: http://www.ecovalve.com.cn/accupulse_3D-CAD_Drawings.html



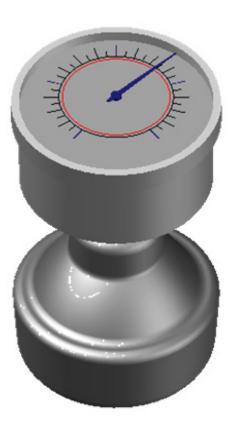
ACCUGAUGE - Gauge with Diaphragm Isolators

General

The Gauge and diaphragm isolator is designed to be mounted into a system to accurately set and monitor system pressures. The diaphragm isolator protects the mounted pressure gauge from corrosive or slurry-laden process fluids. Wetted body shall be made of either PVC, polypropylene, PVDF, 316 S/S, Alloy20 or Hastelloy C. Diaphragm isolator shall be made of Viton, Teflon, or 316 S/S for optimized chemical resistance to the process fluid. The diaphragm isolator shall be filled with temperature stable glycerine. The diaphragm isolator shall be available with a 1/4" NPT (Female) connection only. Pressure gauge measurement range will be from 0 to 160 PSI.

As supplied by Primary Fluid Systems Inc.





PFS INJECTION QUILLS

Female x Male Connection

General

The injection quill body shall be used for center stream chemical injection. The quill shall have a maximum pressure rating up to 3000 PSIG and maximum temperature up to 5000 F. (2600 C.) dependent on material. The quill shall have a female inlet and male outlet NPT connection, with optional connection styles as listed below.

The Quill shall have a built-in spring loaded check valve to reduce siphoning. The check valve is field repairable. The injection quill shall be available in various insertion lengths. The standard discharge orifice is 1/4" for higher velocity discharge, with optional orifice diameters for higher capacity flow. The injection quill shall have a 45 degree tip.

Optional Features

• Connections of BSP thread, ASTM or DIN Spigot, and ANSI, DIN, or JIS Flange.



For downloadable **2D CAD drawings** of our FxM Injection Quills, please visit: http://www.ecovalve.com.cn/injection_quills_female_male_CAD_Draw.html For downloadable **3D CAD models** of our FxM Injection Quills, please visit: http://www.ecovalve.com.cn/injection_quills_female_male_3d-CAD_Draw.html



CS CORPORATION STOPS

General

CS corporation stops are designed for injection of chemicals into the centre stream of a process line to provide simplified maintenance through the use of an isolation valve and gland assembly. A custom designed threaded gland is used to ensure a secure connection under operation. The isolation valve and injection quill body shall be manufactured from non-metallic or metallic materials. The CS corporation stop shall be available in a variety of insertion lengths as well as various industry standard connection styles and sizes. As manufactured by Primary Fluid Systems Inc.

Optional Features

- External check valves are available as an option.
- Flexible hose assemblies are available as an option.
- Connections of BSP thread, ASTM or DIN Spigot, and ANSI, DIN, or JIS Flange.



For downloadable **3D CAD models** of our Corporation Stops, please visit: http://www.ecovalve.com.cn/cs-corporation-stops-cad-3D.html

PFS RETRACTABLE CORPORATION STOPS

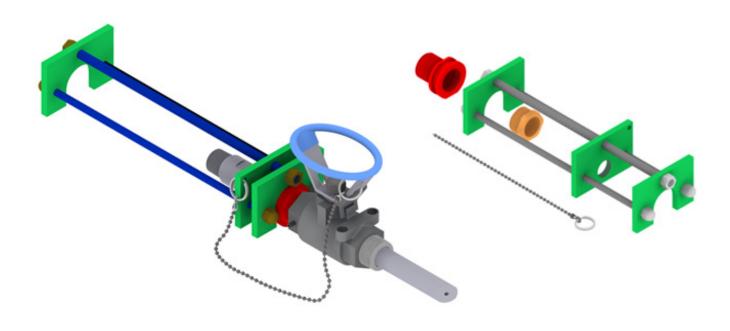
General

The retractable corporation stop shall be used for center stream chemical injection. The retractable corporation stop adds a restraint frame to allow safe quill extraction from pressurized systems up to 1500 PSI. The retractable frame shall be manufactured from stainless steel and titanium Gr.5. The quill shall be extracted by using a standard wrench. The isolation valve and quill body are available in alloy materials only. The Quill shall have a built-in spring loaded check valve to reduce siphoning. The check valve is field repairable with non metallic or metallic internal components.

The overall length of the standard MNPT x MNPT injection quill shall be between 10-1/2" to 12-1/4" for 4" to 6" pipe or between 12-1/2" to 14-1/4" for 8" to 10" pipe. Longer quill lengths are also available. As manufactured by Primary Fluid Systems Inc.

Optional Features

- Retrofit kit available for currently installed PFS corporation stops.
- Connections of BSP thread, ASTM or DIN Spigot, and ANSI, DIN, or JIS Flange.



For downloadable **2D CAD drawings** of our Corporation Stops, please visit: www.primaryfluid.com/Corporation_Stops_CAD_Draw.html
For downloadable **3D CAD models** of our Corporation Stops, please visit: www.primaryfluid.com/3D_Corporation_Stops.htm

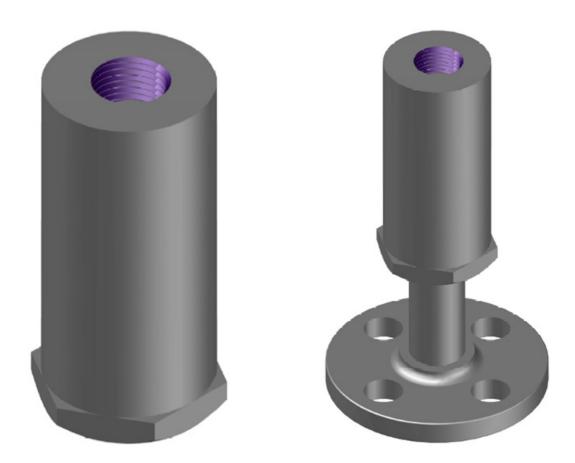
ACCUVENT - Automatic Degassing Valve

General

The automatic degassing valve is designed to vent gases that cause vapour lock in metering pumps. The degassing valve was designed specifically for applications using sodium hypochlorite, sulphuric acid to 98%, and hydrogen peroxide to 30%. Body material shall be made of CPVC, PVDF, or 316 S/S for optimized chemical resistance. The valve shall be available in various connections and sizes, which are listed below. As manufactured by Primary Fluid Systems Inc.

Optional Features

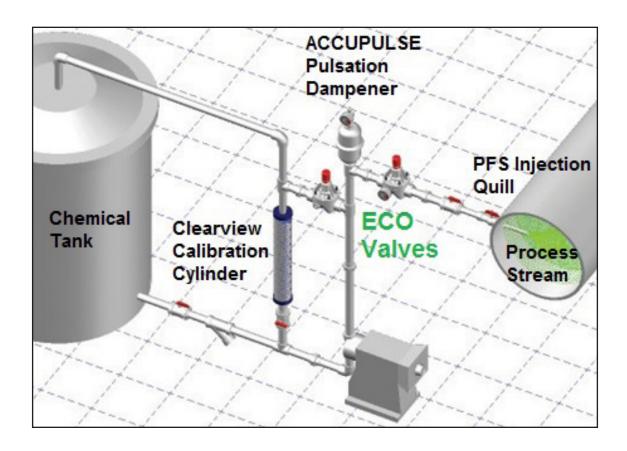
- Connections of NPT or BSP thread, ASTM or DIN Socket, and ANSI, DIN, or JIS Flange.
- Connection sizes include ¼", ½", ¾" and 1"



For downloadable **2D CAD drawings** of Accu-Vent, please visit: http://www.ecovalve.com.cn/accuvent_CAD_Drawings.html
For downloadable **3D CAD models** of Accu-Vent, please visit: http://www.ecovalve.com.cn/3D_ACCU-VENT.htm

Typical Installation

The installation below is a typical installation example only. Consult your Engineering Department for the appropriate installation of your application or call the factory for advice.



Notes

Notes



PRIMARY FLUID SYSTEMS INC.

1050 Cooke Blvd., Burlington, ON. Canada, L7T 4A8
Tel: (905)333-8743 Fax: (905)333-8746
Toll-Free: 1-800-776-6580
www.primaryfluid.com
primary@primaryfluid.com