

# CVS CONTROLS LTD.

product catalogue



*CVS Controls Ltd. provides a quality product at an economical price, and backs it with first-rate service.*

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Controls Ltd.

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CVS Controls is a certified and registered ISO 9001:2008 Canadian manufacturing facility, with its head office located in Edmonton, Alberta and an additional sales office located in Calgary, Alberta. CVS has grown to proudly offer its worldwide customer base, several highly reliable and cost effective replacement control valves and associated instrumentation. Our products are interchangeable, and are a direct replacement with the industry's leading brands.

# CVS

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## Controls Ltd.

CVS Controls focuses on manufacturing, sales, and support of control valves, instrumentation, and performance services.



# CONTROL VALVES

## CVS Series D Globe Valves & DA Angle Valves

The CVS Series D is a single port, screwed-in metal seated globe style valve, with an unbalanced post –guided plug, and “push down to close” plug action for use in high pressure applications.

The Series D valve is especially useful for throttling or on/of control of liquids or gases. The flow characteristic is equal percent, and flow direction of the Series D is up through the seat ring and past the valve plug, while the Series DA flows in either direction.

The CVS Series D Valve body is available in LCC, WCB, WCC, WC9, C5, Monel, and CF8M SST materials. Other materials available upon request.

End connections are ASME Class 150 through 2500, and available with cast integral flanges, welded flanges, screwed or socket weld connections for the Series D. While the series DA end connections are available with welded flanges, screwed, or socket welded connections.



## CVS Series H900 / H1500 / H2500

The H2D Design is a single port, globe style body with cage guiding, and balanced valve plug with push down to close action. Metal seat, piston rings are used to provide the seal between the valve plug and cage. This configuration is used for general applications where tight shutoff is not required.

The H5T design is a single port, globe style body with cage guiding, balanced valve plug, metal seat, and pressure assisted spring seal to provide the seal between the valve plug and cage. It is designed for applications that require low leakage rates.

The flow characteristics are linear, quick opening and equal percent. Standard flow direction is flow down.

End connections are ASME class 900 through 2500, with Raised Face, Ring Type Joint, or welded flanges.

Available in LCC, WCB, CF8M, CF3M, WCC body materials. Other materials available upon request.



## CVS Series EW / EU Globe Valves

The CVS Series EW valve bodies are single port, globe style bodies with cage guiding, clamped seat rings and push down to close valve plug action.

The series features large end connections and expanded internal flow cavities. The valve bodies are available in 4X2, 6X4, 8X4, 8X6, 10X8, 12X6, 12X8, 16X12, 20X16, 24X16, and 24X20 inch sizes. The first number refers to the line size, while the second number refers to the trim and bonnet size.

The flow characteristics of the Series EW are linear, quick opening and equal percent. Available in LCC, WBC, WCC, WC9, C5, Monel, and CF8M SST body materials. Other materials available upon request.

End connections are ASME Class 150 through 900, with Raised Face, Ring Type Joint, and welded flanges.

### Design EWD

Intended for general control applications over a wide variety of temperatures and pressure drops. This design has a balanced valve plug with metal-to-metal seating. Flow direction is flow down.



### Design EWS

Intended for applications requiring better shut off capabilities than the EWD. This valve uses an unbalanced valve plug with metal-to-metal seating, or optional metal-to-TFE seating. Flow direction is flow up.

### Design EWT

Suitable for applications with stringent shutoff requirements. Uses a balanced valve plug with metal-to-TFE seating, or metal-to-metal seating for use in higher temperatures. Flow direction is flow down.



# CVS Series E Globe Valves & EA Angle Valves

## 1-8 Inch

The CVS Series E is a single port, globe style body, with composition or metal seats, and a balanced valve plug with “push down to close” action.

The Flow characteristic of the Series E is linear, quick opening, or equal percent, making it useful in a wide range of applications to suit your needs.

The Series E valve is available in ASME Class 150 through 600.

End connection styles are Raised Face (RF), Ring Type Joint (RTJ), NPT or welded flanges. Available in LCC, WCB, WCC, WC9, C5, Monel, and CF8M SST, body materials. Other materials available upon request.

## Design ED

Intended for general control applications over a wide variety of temperature and pressure drops. The ED has an upper piston ring seal, and metal to metal seating.

## Design ET

The design ET is balanced tight shut off, used in applications requiring low leakage rates. The flow direction for standard cages is flow down.

## Design EZ

The CVS Design EZ valves are a globe style valve with integral end connections, post guiding and features quick change trim. Available in 1 through 2 inch valve body sizes. Flow direction of the Design EZ is up through the seat ring.



# CVS Series V100 Ball Valve

## Available in 2 through 12 Inch Sizes

The CVS V100 Ball Valve design utilizes a standard ball with a triangular shaped wedge formed in it. This design allows for both throttling control and on/off service used in conjunction with a variety of actuators.

Typical actuators used; are the pneumatic spring and diaphragm rotary actuator (CVS 1051), and the pneumatic piston rotary actuator (CVS 1061). These actuators can be mounted either horizontally or vertically on the right or left-hand side viewed from forward flow inlet.

The CVS V100 flow characteristic is modified equal percent.

Available in ASME Class 150 through 600.



## CVS Series HPX / HPAX

### 2-6 Inch, 2 Inch Angle Valves

CVS HPX Control Valves are designed for high pressure applications in the process industry.

Valves are cage guided, with metal seats and quick change trim. Balanced plugs are push down to close.

The HPX is a straight globe valve while the HPAX is an angled valve.

### Design HPX2D & HPAX2

A piston ring provides the seal between the cage and the balanced valve plug.

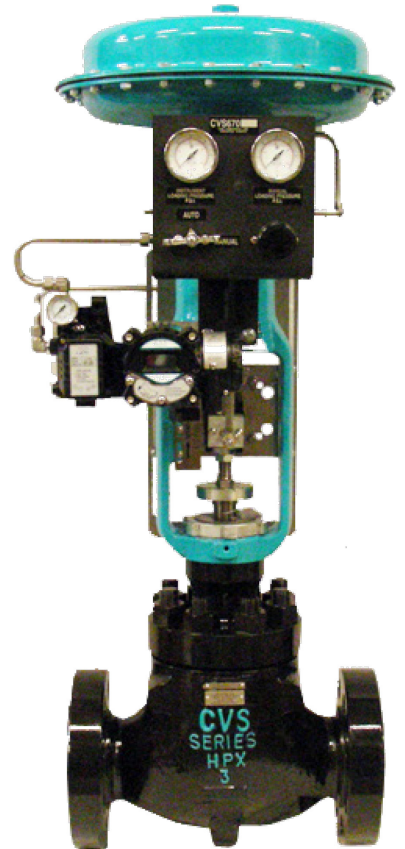
### Design HPX5D & HPAX5

Sealing is provided by pressure assisted seal ring.

The flow characteristics are liner, equal percent and quick opening. Standard flow direction is flow down.

CVS Series HPX Valves are available in the following body materials - LCC, WCB, WCC, WC9, C5, Monel, and CF8M SST. Other materials available upon request.

End connections are ASME class 900 through 2500, with Raised Face, Ring Type Joint, NPT, or welded flanges.



## CVS Series 128 PQC

The CVS Series 128-PQC Control Valves are suitable for on/off dump valve service in oil & gas production applications, in either sweet or sour gas conditions. These valves are also useful for on/off high pressure control of numerous gases and liquids, and can be used with materials that are viscous or erosive.

This is a single port valve with unbalanced stem-guided valve plug and push down to close valve plug action. Operated by a type 128 spring and diaphragm actuator, the assembly can be operated in a normally open or normally closed application. This setting can be reversed in the field with minimum disruption and no additional parts. The flow characteristic of the CVS 128PQC is quick opening, with a 45° taper plug.



## CVS Series DBQ & DBAQ

The CVS Series DBQ & DBAQ is ideally suited for high pressure water and steam applications, which is available in Globe and Angle style body. The flow characteristic is up through the seat ring and out through the cage, equal percent. The DBQ & DBAQ are single port metal seated valves with push down to close valve plug action.

### Valve Class & Flange Range:

- Valves are rated ASME Class 1500 & 2500
- Valve connections are raised face (RF) or ring type joint (RTJ), National Pipe Thread (NPT), or butt weld as per ASME B16.34-latest edition.

**Valve Body Materials:** Standard CVS valve bodies available: LCC, WCB, CF8M (316SS)  
Additional materials may be available.



## CVS Valve Trim

CVS offers a selection of standard, and NACE compliant trim and trim kits. All of CVS Controls trim, and trim kits are completely compatible and interchangeable with industry leading products. Stellite, tungsten carbide, alloy 6, cobalt and ceramic trim are also available.

CVS Controls can assist in selecting the correct valve and trim to best suit your application, from standard control process to severe service.

Linear requirements include noise abatement and anti-cavitation options. Equal percent and low flow applications include M-Form, M-Flute, and M-Flow. As well as quick opening flow characteristic solutions for on/off applications.

Please consult a CVS sales representative regarding size, availability, delivery, and special orders.



# BALL VALVES

## CVS Series 9000/9100 3 Piece Trunnion Ball Valves

### 2 through 12 Inch

The CVS Controls Series 9000/9100 Trunnion Ball Valves are available in a variety of configurations and materials to meet specific applications. The Series 9000 is a regular port while the Series 9100 is a full port.

The CVS Series 9000/9100 Ball Valves are available in 2 Inch though 12 inch, ASME Class 150/300, 600, 900, 1500, and 2500.

Standard features include:

- Emergency sealant injection (6" and larger)
- Anti-Blowout
- Lockout Protection
- Double Block and Bleed
- Valve Cavity Pressure Relief
- Firesafe ISO Design
- Manufactured to API 6D Specifications, and ASME B16.34-latest edition standards



## CVS Series 8000/8100 Floating Flanged Ball Valves

### 2 though 4 Inch

The CVS Controls Series 8000/8100 Ball Valves are a regular port or full port floating ball valve, available in a variety of configurations and materials to meet specific applications.

Series 8000/81400 floating ball valves are a flanged end connection, ASME Class 150, 300, and 600.

Standard features include:

- Ball Position Indicator and Blowout Proof Stem
- Encapsulated Body Seals
- Bi-Directional Sealing
- Equalized Cavity Pressure
- Lockout Protection
- Firesafe ISO Design
- Manufactured to API 6D Specifications, and ASME B16.34 latest edition standards.





# ACTUATORS

## CVS Series 657 & 667

### Sizes 30 - 80

The **CVS Series 657** is a direct acting, spring opposed diaphragm actuator with a 4 inch maximum travel. Signal pressure supplied to the upper housing chamber forces the stem downward. When the signal pressure is reduced, the compressive force on the spring moves the stem upward. If the signal pressure should fail, the spring will force the stem in the upward direction providing “fail-open action” for “push down to close” valves.

The **CVS Series 667** is a reverse acting, spring opposed, diaphragm actuator with a 4 inch maximum travel. When the signal pressure increases to the lower diaphragm casing, the actuator stem is forced upward compressing the spring. When the signal pressure is reduced, the spring moves the actuator stem in the downward position.

If the signal pressure should fail, the spring will force the stem in the downward position providing “fail closed action” for “push down to close” valves. Both the **CVS 657 & 667** actuators are used for automatic operation of control valves used in applications where throttling or on/off service is required.



CVS Series 667



CVS Series 657

## CVS Rack and Pinion Actuator

Rack and Pinion Actuators are used to open or close ball or butterfly valves with 90° rotation. Rack and Pinion Actuators are activated pneumatically or by hydraulic fluid. The supply pressure pushes pistons together or apart causing the pinion shaft to rotate opening or closing the valve.

The actuators can be double acting or spring return. Double acting requires supply pressure to open and close the actuator. Single acting actuators require supply pressure to open the actuator, when the supply pressure is removed the springs push the pistons back to the original position. Single acting actuators can be fail open or fail closed. CVS actuators are available in sizes 52 to 800 with torques 50 in/lbs to 1,565,000 in/lbs. CVS actuators are temperature rated from - 50°C (-58°F) to 80°C (176°F) with standard seals made of low temperature nitrile.

The actuators adhere to ISO 9001: ISO5211, DIN3337, and VDI/VDE 3845 NAMUR standards. Each actuator has position indication with NAMUR drive slot for limit switches and pneumatic connections. The output shaft and valve mounts meet NAMUR standards. Each actuator has stroke adjustment 0° to 90°, +/-5 degrees. Direction of shaft rotation can be changed easily by inverting the pistons.



## CVS Series 1051 Rotary Actuator

### Sizes 30 - 70

CVS Type 1051 Diaphragm Rotary Actuator is a pneumatic spring return design for rotary shaft control valves.

It is suitable for on/off service or throttling service when used with a valve positioner.

Air is supplied to the top of the actuator, as air pressure increases it compresses the spring and the diaphragm rod travels down. The rod is connected to a lever which causes the valve shaft to rotate. When air supply fails the spring expands and the valve shaft rotates the opposite direction. Stroking time is dependant on actuator size, spring rate, and supply pressure.

The travel indicator is a combination graduated disc and pointer on the actuator end.

Fixed travel stops are an available option.



## CVS Series 35-70 Scotch Yoke Actuator

The CVS 35,50,60 and 70 actuator uses a scotch yoke mechanism for high break away and reseal torques. Used for opening and closing quarter turn ball and butterfly valves. The CVS scotch yoke actuator is a single acting hydraulic actuator which uses pressurized hydraulic fluid to open the actuator. As the fluid is pressurized, the piston moves and compresses the spring. When the hydraulic fluid is depressurized, the spring expands and pushes the piston back to its starting position.

Piston movement causes the yoke to move and rotate the shaft that is connected to the valve. The actuator is temperature rated to  $-50^{\circ}\text{C}$  ( $-58^{\circ}\text{F}$ ) using low temperature nitrile seals.

Hydraulic supply pressure is 200 to 2000 psi and the hydraulic and spring torques are 1500 to 27700 in/lbs.

The actuator can be used in fail open or fail closed applications.



# PRESSURE CONTROLLERS

## CVS Series 4150 / 4150LE / 4160

CVS Controls offers three types of Pressure Controllers:

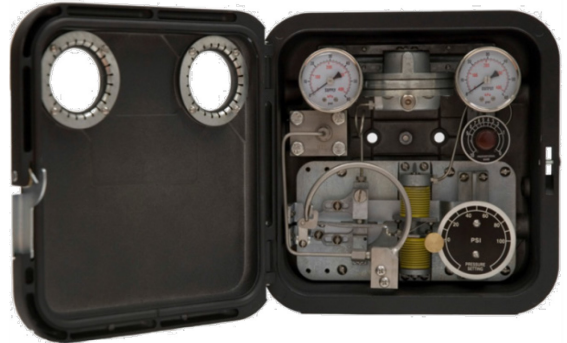
- Proportional (CVS 4150)
- Proportional Reset (CVS 4160)
- 4150 LE Low Emission

The CVS 4150 and 4160 are pneumatic pressure controllers that utilize a bourdon tube or bellows for sensing vapor, liquid or gas pressure, and differential pressure. The CVS controller can be reconfigured from direct, to reverse acting or vice versa without any additional parts.

CVS Pressure Controllers offer dependability, toughness, sturdy construction, reliable performance, and accurate service. With regular scheduled maintenance, the Pressure Controller will provide continuous service for many years.

The CVS 4150 and CVS 4160 Pressure Controller is a weatherproof unit, and can be either mounted on the yoke of a control valve, wall mounted or panel mounted.

The CVS 4150LE low emissions pressure controller uses a minimum of 6, and up to 10 times less fuel than a standard 4150 pressure controller.



CVS Controls Ltd. Low Emission Series

# POSITIONERS

## CVS 1000R Electro-Pneumatic Positioner

The CVS Electro-Pneumatic Positioner CVS-1000R is used for operation of pneumatic rotary valve actuators by means of electric control for systems pneumatic output signals of 3 - 15 psi or 6 - 30 psi. Input signal is DC 4 - 20 mA. The positioner is CSA approved and rated EXdmlIBT5 explosion proof zone 1, class 1, division 1. Can be reverse acting or direct acting and is suited for single or double acting actuators. It is possible to prevent hunting with the correct orifice size for smaller actuators. This positioner has very low air consumption. Easy to read dome indicator allows for positioner monitoring from a distance. It is possible to control the ½ split ranges with simple adjustments without replacing parts.



## CVS 1000L Electro-Pneumatic Positioner

The CVS Electro-Pneumatic Positioner CVS-1000L is used for operation of pneumatic linear valve actuators by means of electric control for pneumatic output signals of 3 - 15 psi or 6 - 30 psi.

The positioner is CSA approved and rated EXdmlIBT5 explosion proof zone 1, class 1, division 1. Can be reverse acting or direct acting and is suited for single or double acting actuators. It is possible to prevent hunting with the correct orifice size for smaller actuators. This positioner has very low air consumption. It is possible to control the ½ split ranges with simple adjustments without replacing parts.



## CVS 1200 Pneumatic Positioner

CVS 1200 uses a block structure and multi-port design.

There are two types of positioners available, a rotary positioner for rotary pneumatic actuators, and a linear positioner for linear pneumatic actuators. Valve stroke is quickly and accurately controlled with an input signal of 3 - 15 psi or 6 - 30 psi. It can be reverse acting or direct acting and is suited for single or double acting actuators. It is possible to prevent hunting with the correct orifice size for smaller actuators.

This positioner has very low air consumption and it is possible to control the ½ split ranges with simple adjustments without replacing parts.



## CVS 3400 Flameproof Smart Positioner

The CVS 3400 is a CSA approved and Explosion Proof Rated EX d IIC T6/T5, Class 1, Zone 1, Group A.

Additional certifications include ATEX and IECEx. The CVS 3400 Smart Positioner accurately controls valve stroke using an input signal of 4 - 20 mA from the controller. The smart positioner uses torque motor control for better resistance to moisture dust and vibration. On board micro processing optimizes the positioner performance and allows for auto calibration, PID control, alarm and HART protocol. Output characteristics are linear, equal percent, quick open and user specified.

The LCD display enables easy monitoring of the position.

PID parameters can be easily adjusted in the field by push button, information is transferred with a HART communicator. The CVS 3400 smart positioner has analog feedback signal capability. Operating temperature limits from -40°C to 85°C (-40°F to 185°F). Also available in stainless steel, Model # CVS3450.



## CVS 2500 Smart Positioner

The CVS 2500 is an intrinsically safe Smart Positioner which accurately controls valve strokes using an input signal of 4-20mA from the controller. Piezoelectric valve is used to control the output signal and can be configured to fail freeze or fail safe. Optional mechanical or proximity limit switches. On board micro-processing optimizes positioner performance and allows for auto calibration, PID control, alarm and HART protocol.



Output characteristics are linear, equal percent, quick open and user specified. The LCD display enables easy monitoring of the position. PID parameters can be easily adjusted in the field by push button, information is transferred with a HART communicator. The CVS 2500 has an IP66 protection grade and explosion proof rating Ex ia IIC T6/T5. Temperature rating of -30°C to 80°C. Available in linear or rotary configuration. Near zero air consumption level of 0.01 LPM.

## CVS 2400 Smart Positioner

The CVS 2400 Smart Positioner accurately controls valve stroke using an input signal of 4 - 20 mA from the controller. The smart positioner is CSA approved and rated EXdmiIBT6 + H<sub>2</sub> explosion proof zone 1, class 1, division 1. On board micro processing optimizes the positioner performance and allows for auto calibration, PID control, alarm and HART protocol. Output characteristics are linear, equal percent, quick open and user specified. The LCD display enables easy monitoring of the positioned. PID parameters can be easily adjusted in the field by push button; information is transferred with a HART communicator. The smart positioner has analog feedback signal capability.



## CVS 2300 Smart Positioner

The CVS 2300 is an intrinsically safe Smart Positioner which accurately controls valve strokes using an input signal of 4-20mA from the controller.

Piezoelectric valve is used to control the output signal and can be configured to fail open or fail close. On board micro-processing optimizes positioner performance and allows for auto calibration, PID control, alarm and HART protocol. Output characteristics are linear, equal percent, quick open and user specified. The LCD display enables easy monitoring of the position.

PID parameters can be easily adjusted in the field by push button, information is transferred with a HART communicator. The CVS 2300 has an IP66 protection grade and explosion proof rating Ex ia IIC T6/T5. Temperature rating of -30°C to 80°C. Available in linear or rotary configuration.





# EMERGENCY SHUTDOWN DEVICES

## CVS Self Contained Hydraulic Pump

The CVS Self Contained Pump provides reliable emergency shutdown when an external power source or fuel gas is not available. The unit uses clean hydraulic fluid which is contained in the pump. Used in conjunction with linear or rotary spring return actuators the SCHA is a fail safe system which is suitable for ball, plug, quarter turn or linear operated valves.

This pump has been proven reliable under the most demanding operating conditions and it is designed to be the foundation for a flexible sensing control system and has built in temperature compensation and pressure relief.

The pump can be ordered in pressure configurations from 100 to 2250 psi. The self contained hydraulic pump can be used in remote locations and operates in temperature as low as  $-46^{\circ}\text{C}$  ( $-50.8^{\circ}\text{F}$ ).



## CVS 7970 Pressure Pilot

The CVS 7970 is a versatile stainless steel sensor that can be programmed to detect and react to increasing or decreasing pressure. The 7970 is available with adjustable pressure range from 2 to 10,000 psi (0.138 to 689.5 bar)

The pressure pilot monitors the process pressure source for changes in the normal operating range. If the pressure drops within the control circuit it will start a shutdown sequence or trigger an alarm.

The 7970 can also indirectly operate on/off flow control valves or pneumatic driven pumps. This valve is a two position, 3-way pilot with universal ports (H, O, L), automatic spring return reset and pressure balanced spool.

Each unit also contains the necessary components for four different piston arrangements.



## CVS 2000 Pressure Pilot

The CVS 2000 Pressure Pilot is a High and Low pressure sensing unit, used to monitor process or pipeline pressure in high/low pressure shutdown installation.

This unit utilizes a spring loaded piston to sense the set pressure settings and activate a pilot valve, and can be operated by either a hydraulic or pneumatic signal.

### Features:

- Adjustable pressure range from 10psi to 6000psi (0.7bar to 413 bar)
- Easy field adjustable set points
- Ambient temperature range from -46°C to 100°C (-50°F to 212°F), Process temperature range from -46°C to 200°C (-50°F to 392°F)
- Available in both manual and automatic reset configurations
- Ideal for use as part of a complete CVS Shutdown System (ESD)
- Signal/Supply pressure up to 150 psig
- Standard 2" NPT threaded input connection (additional options available upon request)

## CVS Series Isolation Valve

The CVS Isolation Valve is the ideal solution to allow calibration or servicing of the CVS Series 2000 Pressure Pilot, without shutting down the process flow line.

The isolation valve is quarter turn open/close operation with the lockout feature that allows the isolation valve to be locked out in either fully open or fully closed position. The spring loaded stem seals allows for temperature fluctuations and seating provides low pressure seal as well as high pressure support while minimizing torque.

\* Safety Feature – Prevents the isolation valve stem to be removed while under pressure.

CVS 2000 Pressure Pilot



CVS Isolation Valve

## CVS Spools

CVS Controls Ltd. has a dedicated welding and fabrication shop located in Edmonton, Alberta. Custom designed valve spools can be provided to mount your ESD application to your specifications as required.

CVS Controls Ltd is dedicated to providing you with the right Emergency Shut Down System to best suit your applications needs.

A wide array of individual products to add to your current configurations, or a complete package, is available.

Contact a CVS Controls representative to assist you in finding the best ESD Solution for your application.



# 3-WAY VALVES

## CVS Series 4057 Type CP, CG & CE

The 4057 is a two position three way valve that can be used for actuator control, hydraulic, pneumatic panel, and safety control systems. They feature balanced force design where pressure can be applied to any port. Standard center dead spot, port overlap is optional. It is designed for panel or bracket mounting available in aluminum or 316 stainless steel. They are temperature rated from 120°C to -40°C with a maximum pressure of 125 psi.

### 4057 CG

This valve features a spring loaded spool that is pneumatically or hydraulically piloted.

### 4057 CP

This valve features a spring loaded spool that is pneumatically or hydraulically piloted with a manual over ride lever.

### 4057 CE

This valve is manual or pressure operated spring return, 27psi or 16lbs to operate.



CE

CG

CP

# LIMIT SWITCH

## CVS-870

The CVS 870 Limit Switch is designed for valves and actuators in hazardous locations.

It will accurately monitor and transmit the valve position and the specified user open/closed set points.

The limit switch is CSA approved and is rated EX db IICT6/EX tb IIC T85°C explosion proof, class 1, zone 1. It also carries ATEX certification and has an IP67 enclosure rating.

Equipped with standard NAMUR shaft and stainless steel bracket, for easy mounting to all NAMUR actuators. Secure water resistant case, with multi angle top and side visual indicator. Red to indicate fully closed position, and yellow to indicate fully open position.

Standard switch configurations is 2 single pole double throw.

Optional proximity sensors are also available.

Also available in Stainless Steel - Model Number CVS-875.



# CHEMICAL PUMPS

## CVS Series 51 Chemical Injector

The Series 51 Chemical Pump is used for the introduction of de-emulsifiers, corrosion inhibitors, de-scaling agents, solvents, and methanol. The pump is a positive displacement pump that uses air or process gas to drive the pump. It uses a molded diaphragm to drive a piston through chevron packing making it a positive displacement pump with a spring return. Discharge pressures up to 6000 psi with a maximum output volume of 30 gallons per day. The pump is controlled by a 2 position 3-way valve in 3 configurations:

- Standard micro switch
- Traegyr switch
- Pilot valve

Supply pressures are 15 - 35 psi and the pump will operate at 0 to 30 strokes per minute with a 1 inch stroke. Available injection plungers are 3/16", 1/4", 3/8", and 1/2". The pump housing is constructed out of powder coated cast aluminum. Plunger packing material can be Buna-N, Viton, Teflon, or Flourosilicone. O-ring suction and discharge seals can be Buna -N, Viton, or Flourosilicone.

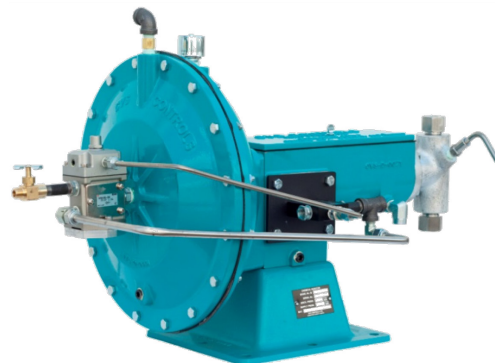


## CVS Series 50 Chemical Injector

The Series 50 Chemical Pump is used for the introduction of de-emulsifiers, corrosion inhibitors, de-scaling agents, solvents, and methanol.

The pump is a positive displacement pump that uses air or process gas to drive the pump. It uses a molded diaphragm to drive a piston through chevron packing making it a positive displacement pump with a spring return. Discharge pressures up to 12,000 psi with a maximum output volume of 500 gallons per day at 60 strokes per minute.

The pump is controlled by a 2 position 3 -way micro valve. Supply pressures are 15 - 35 psi and the pump will operate at 0 to 60 strokes per minute with a 1¼ inch stroke. Available injection plungers are 1/4", 3/8", 1/2", 3/4", 1", and 1¼".



## CVS Low Emissions Pump

The CVS LE Chemical Pump is used for the introduction of de-emulsifiers, corrosion inhibitors, de-scaling agents, solvents, and methanol. This pump will do the same job as the Series 51 using a fraction of the supply gas, making it low emission.

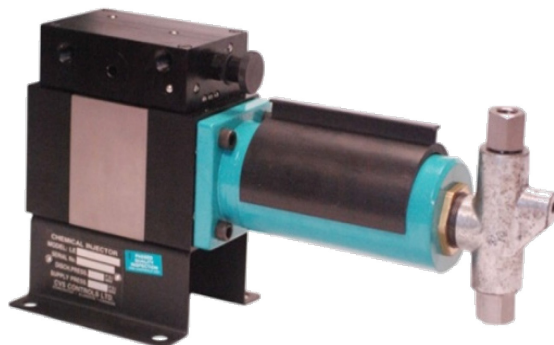
The pump is a positive displacement pump that uses air or process gas to drive the pump. It uses pneumatic double acting cylinder to drive a piston through chevron packing making it a positive displacement pump.

The pump has a 5/2 pneumatic control valve with flow control to actuate the cylinder with pilot valves in the end caps to control the main valve spool. Discharge pressures up to 6000 psi with a maximum output volume of 120 gallons/day.

Supply pressures are 3 - 150 psi and the pump will operate at 0 to 100 strokes per minute with a 1 inch stroke. Available injection plungers are 3/16", 1/4", 3/8", and 1/2".

Plunger packing material can be Buna-N, Viton, Teflon, or Flourosilicone.

O-ring suction and discharge seals can be Buna-N, Viton, or Flourosilicone. Double head low emission pump also available.



## CVS Low Pressure Portable Hand Pump

The CVS Chemical Hand Pump effectively de-ices valves and lines with just a few strokes. The Hand Pump is mounted on a 20 liter (5 gallon) metal container and has a rubber core steel braided discharge hose and integrated pressure relief valve.

### Low Pressure Pump

Discharge stroke volume is 2.29 cu/in. or 37.5mL per stroke. Discharge pressures of 0 - 1000 psi.

### High Pressure Pump

Discharge stroke volume is 0.73 cu/in. or 11.96mL per stroke. Adjustable discharge pressures of 0 - 3000 psi.



# REGULATORS

## CVS Series 670 Panel Mounted Loading Regulator Assemblies

The main application for the CVS 670 Panel Mounted Loading Regulator Assemblies for the manual control of the pressure to diaphragm control valves. May be also used as remote pressure loaders for pressure balanced gas regulators and the control of gas pressure to burners in refinery tube stills, power plants, and other process furnaces. Instrument and manual loading pressures are read from the pressure gauges of the regulator. Pressure is easily adjusted by turning the regulator hand wheel.



## CVS Series 630 HP Regulator

The CVS 630 HP Series consists of a high pressure reducing regulator, and CVS 630R relief valve.

These regulators and relief valves are furnished in either spring loaded or pressure loaded construction with 1 or 2 inch NPT screwed connections. Pressure loaded Type 630 HP regulators are normally furnished without a main regulator spring and use a Bellofram 7360 or a Bellofram P39 regulator.

Pressure loaded Type 630R relief valves are furnished with a light rate relief valve spring and use Bellofram 7360 or a Bellofram P39 regulator. The outlet pressure limits for the spring loaded 630 HP low pressure regulator is 3 - 40 psi while the high pressure regulator is 27 - 500 psi. The Bellofram 7360 has a maximum inlet pressure of 250 psi and the P39 has a maximum of 6000 psi.

The outlet pressure ranges are 0 - 500 psi.



## CVS Series 67CFR Regulator

The CVS Controls 67CFR filter regulator is a pressure reducing supply regulator typically used for pneumatic and electro pneumatic controllers, as well as a wide range of instrumentation equipment. The CVS 67CFR provides constant, clean air or gas supply to devices requiring reduced pressures for control. Included standard is an integrated polyethylene (5 micron) filter. Maximum inlet pressure is 250 psig, with adjustable pressure outlet ranges from 0 to 125 psig. The CVS 67CFR comes standard with 1/4" vent cap and panel mount capabilities.



## CVS Series 67 AFR Filter Regulator

The 67AFR Filter Regulator is a self-operated unit which provides continuous reduced pressures in a variety of applications and service conditions.

A cellulose or stainless steel filter is used to remove particles greater than 0.0016 inch (0.040 mm) in diameter.

In addition these regulators contain integral low capacity relief valves. It uses a valve stem that sits against an orifice in the diaphragm assembly.

When downstream pressure increases above the set point, the diaphragm assembly moves off the valve stem and vents the excess pressure through a tapped hole.

Maximum allowable inlet pressure is 250 psi and the outlet pressure ranges 3 - 100 psi.



## CVS Series 1301F & 1301G

CVS Types 1301F and 1301G Regulators are a self-operated high pressure regulator. They are used where high pressure gas must be reduced for use as pilot supply pressure, or as loading pressure in pressure loaded regulators.

The **Type 1301F** Regulator provides outlet pressures to 225 psi (15.5 bar) in three spring ranges. Inlet pressures can range up to 6000 psi (414 bar).

The **Type 1301G** Regulator provides outlet pressures from 200 to 500 psi. Inlet pressures can range up to 6000 psi (414 bar).



**1301F**



**1301G**



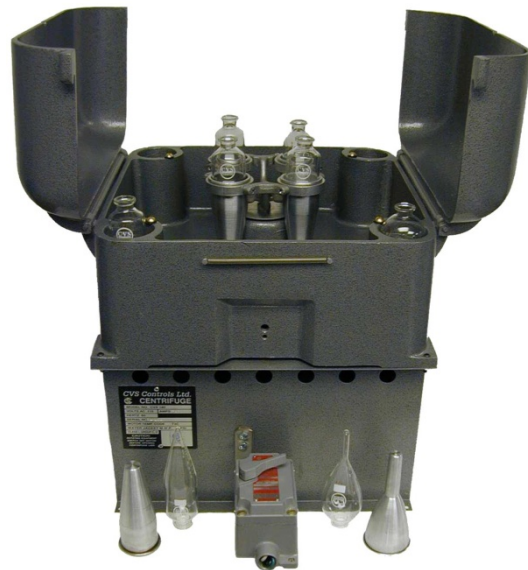
# CENTRIFUGES

## CVS Series 18000 Thermo-Cycle Heated Centrifuge

The unique feature of the CVS 18000 CSA Approved thermo-cycle heated centrifuge is the pre-heated pockets, which accept both short cone and pear shaped tubes. With a simple change of the rotating head assembly, the centrifuge is ready for the desired sample tube style. The hole in the 18000 Centrifuge lid allows the operator to easily check speeds using a hand held tachometer.

The centrifuge meets the requirements of API MPMS 10.4, Determination of Water and Sediment in Crude Oil by the centrifuge method. Single Phase, 60Hz, 1.1 Amp, Class 1, Div 1, Group C, D.

An optional thermostatically controlled CSA approved Thermo-Cycle heater attaches to the centrifuge, and provides circulating hot water/glycol mixture throughout the heating chamber of the centrifuge.



## Tubes & Shields

### TUBES:

#### Model 45170

12.5mL finger tube made to API standards

#### Model 45244 – 100

100mL pear shaped tube made to API standards

#### Model 45244 – 200

200% pear shaped tube made to API standards

#### Model 45243 – 100

100mL short cone tube made to API standards

#### Model 45243 – 200

200% short cone tube made to API standards

### SHIELDS:

Finger Tube - CVS18371

Short Cone - CVS18081

Pear Shaped - CVS18080



## CVS Sample Heaters

The CVS Sample Heaters are a hot water bath used for heating samples. It will accept various sizes, quantities, and configurations including:

- Pear shaped tubes
  - Short cone tubes
  - Long cone tubes
  - Graduated cylinders
  - Sample jars
- 
- Stainless steel construction
  - Easily maintained
  - Sample heat temperature range is 10° C – 120° C.

Other configurations include a chamber that will pre-heat a quantity of products used for cutting samples, and clean-up purposes.

CVS Sample Heaters are approved for:

- Class 1, Group C & D Hazardous Locations
- 120 VAC, 60 HZ, 1000 Watts



## CVS Series 18800 - Hand Driven

The CVS Series 18800-Hand Centrifuge offers reliability, durability, and rugged construction. These characteristics make it ideal for field use.

It uses a smooth dual gear driven system with a ratio of 16:1, to ensure efficient centrifugal force for sediment and water testing.

The integral serrated clamp allows the hand centrifuge to be easily secured to many surfaces.

The hand crank design provides adequate clearance of tubes and shields, while samples are in motion

## CVS 18801 Centrifuge

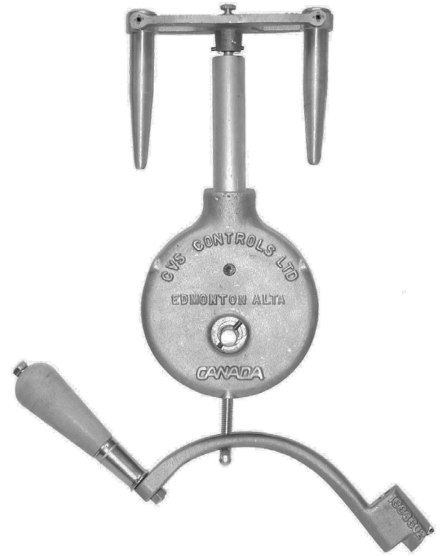
Hand driven, 12.5ml, 2-place finger type comes with 2 finger shields less tubes.

## CVS 18811 Centrifuge

Hand driven, 100ml or 200%, 2-place finger type comes with 2 finger shields less tubes.

## CVS 18821 Centrifuge

Hand driven, 100ml or 200%, 2-place short cone type comes with 2 short cone shields less tubes.



# PRESSURE GAUGES

## CVS Pressure Gauges

CVS Controls offers a wide range of rugged, reliable, and dependable pressure gauges.

- Stainless Steel Construction
- Liquid Filled Gauges (Glycerin, Silicone, or other fillings available upon request)
- Diaphragm
- **Safety**
- Econoline
- Well-Head Gauges

CVS also calibrates, certifies, and repairs all brand name gauges. Custom emblems are available on all gauge dials upon request.

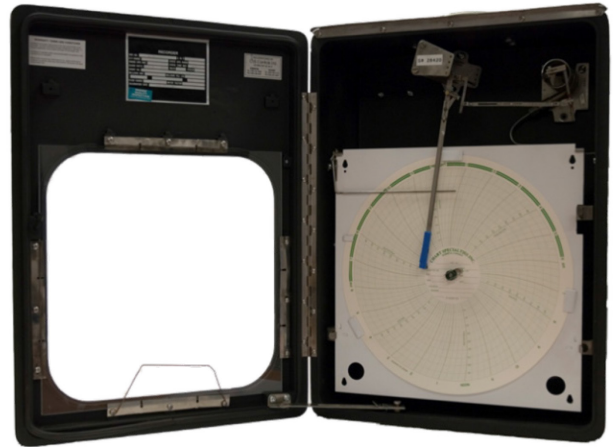


# PRESSURE & TEMPERATURE RECORDERS

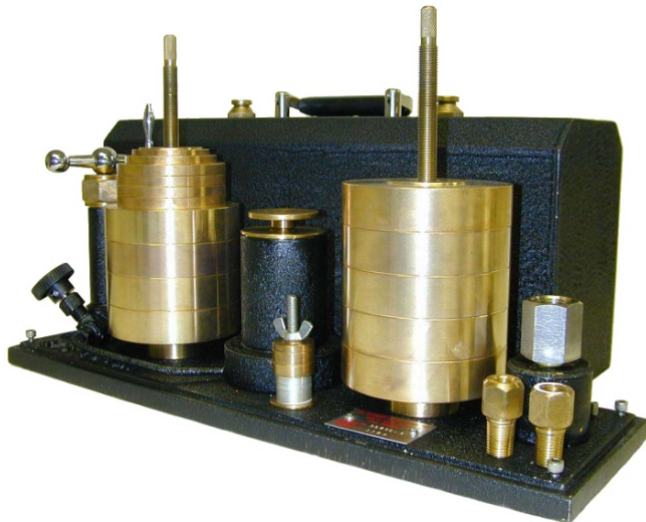
## 2 Pen & 3 Pen Chart Recorders

Chart recorders are the industry standard for accurate, reliable measurement and recording of pressure, differential pressure, and temperature in a wide variety of applications.

They feature rupture proof bellows as the actuating unit with features like over range protection and pulsation dampening.  
Safe working pressure 0-2500 psi (172 bar)  
Operating temperatures -40°C to 82°C  
(-40°F to 180°F).



## DEAD WEIGHT TESTERS



The Dead Weight Tester is an extremely compact instrument designed for pressure testing and calibration.

The unit comes complete with weights, hand jack, hand set and one of each 1/8", 1/4", and 1/2" adaptors.

It has an accuracy of 1/10 of 1% of the rated pressure.

Standard available ranges 1000 - 20,000 psi (7000 - 140,000 KPa) Traceable to the National Institute of Standards & Technology (NIST)

# DEW POINT TESTERS

The CVS Dew Point Tester is a chilled mirror apparatus, which operates by attaining the conditions necessary by the definition of dew point.

When gas is cooled without contact with water, the content remains constant but the saturation increase until it reaches 100% and moisture begins to condense. The temperature at this point is known as the dew point.

The tester consists of a high pressure chamber through which the gas sample flows. As the operator throttles the gas a mirror is observed until condensation appears. Once condensation is seen the operator can record the temperature. Model A-2 uses propane or carbon dioxide as a refrigerant.

Conforms to ASTM D1142, and GPA 2140 standards.



# THERMOMETERS

## CVS Thermometers & Thermowells

CVS Thermometers can be used wherever precise temperature and quality is required. There are five models available:

- Back Connected
- Adjustable
- Bottom Connected
- General Test Pocket Thermometer
- Magnetic Surface Thermometer

All CVS Thermometers are stainless steel, hermetically sealed to ensure resistance against internal corrosion, moisture, and dirty atmospheres. Standard stem lengths available are 2 1/2", to 72" with 1/4" and 1/2" connections.

Temperature ranges from -100°F to 1000°F (-70°C to 550°C) and accuracy to within +/-1% of full scale range. Mercury, gas, and alcohol sensing thermometers available for vibration and special applications.

The CVS thermowells can be used in a variety of different process applications where viscosity, pressure, corrosive, or abrasive materials are present.



Thermowells allow removal of the temperature instrument for replacement, repair, or testing without contaminating the process media. CVS thermowells are available in 304 and 316 stainless steel (other materials available upon request) with a standard bore of .260" and process connections of 1/2", 3/4", and 1" NPT.

## LAB THERMOMETERS

### CVS Lab Thermometers



CVS carries a wide variety of ASTM Thermometers for special use, low-temperature, oven - incubator general testing, standard laboratory, dual scale, 6" pocket/double armor, and Midget Industrial thermometers.

API Metric density dual scale thermometers are available in API degrees and metric density kg/m<sup>3</sup>. The combined form (thermometer in body) comes with dual scales of °C and °F.

API and ASTM Hydrometers are also available in plain or combined form.

Please consult a CVS sales representative for additional information.

# MISCELLANEOUS

## Oil Thief & Accessories

The Oil Thief is a simple, one spring device for taking accurate samples of the tank bottom. Features include one-line, adjustable controls, adjustable hanger, and replacement valve seat. Choice of bronze or aluminum body. Weight of bronze body: Approximately 6 - 8 lbs.

Weight of Aluminum body: Approximately 4 - 5 lbs.

Barrel: Clear acrylic plastic, polished brass or aluminum.

Available with or without sample cock.

Available in the following lengths:

- 12", 14", 16", 18", and 24"

### Oil Thief Lowering Accessories

Bronze lowering chain with fittings.

Available in the following standard lengths:

- 16 Ft, 25 Ft, or 32 Ft.



### Atlas Chrome Clad Tapes

Atlas chrome tapes have black markings bonded to the steel and recessed beneath multiple layers of nickel and chrome electroplating to provide greater resistance to wear and corrosion. A coating of 'lufkote' further enhances the long wearing properties of these tapes.

## Other

CVS Controls also offers additional miscellaneous items:

- Windcones
- Disposable Hinged Clip Circular Pens
- Gauge Line Accessories
- CVS 1000 Hand Pump Carrier

Please contact a CVS sales representative for additional information.



# NORRISEAL



- CVS Controls is a distributor for all Norriseal Products.
  - We carry Series 1001A and 1005E level controllers
  - We also carry a full line of Norriseal control valves.

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**QUALITY PRODUCTS AND SERVICES  
ISO 9001:2008 REGISTERED CERTIFICATE NUMBER 0065770**

CVS Controls Ltd. is an industry leader in the manufacturing of Control Valves and associated instrumentation products. We are dedicated to meet and exceed the challenging needs the industries require. Our solid growth has come from ensuring that our products are completely interchangeable with the industry's leading brands, and manufactured to strict quality control standards.

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**ADDITIONAL CVS SALES OFFICE:**

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[www.cvs-controls.com](http://www.cvs-controls.com)**

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For a complete list of international representatives please see our website. [www.cvs-controls.com](http://www.cvs-controls.com)