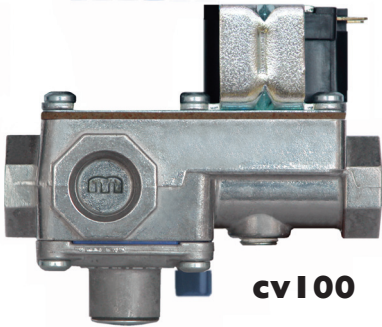
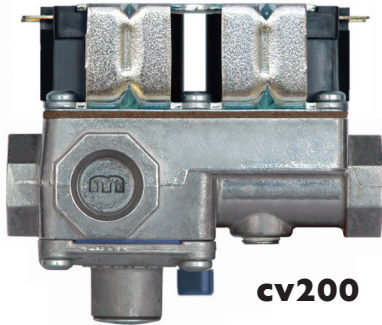


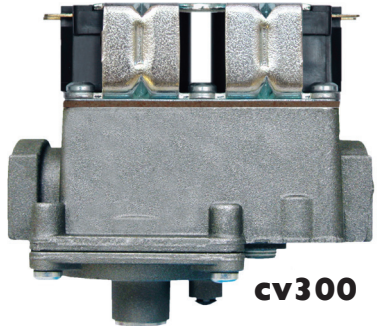
# CV Series Gas Combination Controls



**cv100**



**cv200**

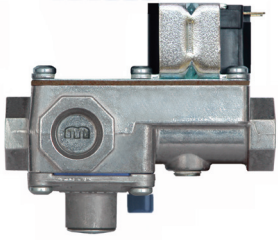


**cv300**



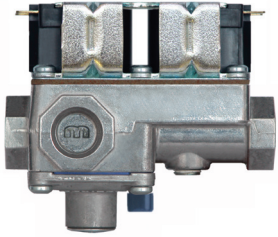
# MAXITROL

# Applications



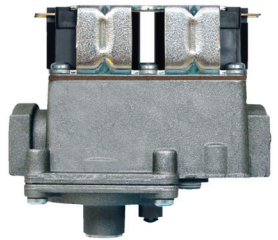
## CV100

The CV100 is a compact combination control used for applications with high capacity pilot lines such as large gas boilers and power burners. The CV100 combines a single solenoid valve and a regulator. Not having to purchase these components separately reduces both material and labor costs.



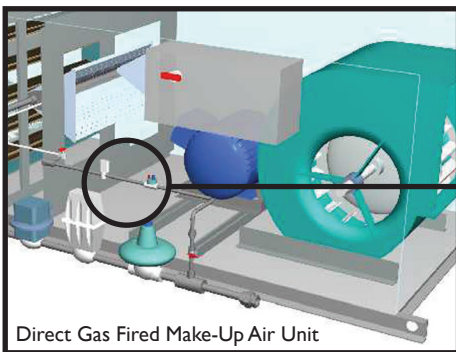
## CV200

The CV200 is a redundant combination control, having two solenoid valves. It is used in direct spark or hot surface ignition applications which eliminates having a standing or continuous burning pilot flame. The CV200 is ideally suited for direct vent gas fired baseboard heaters, space heaters, wall furnaces, water heaters, gas fireplaces, agricultural heaters, and commercial cooking appliances.



## CV300

The CV300 is a redundant combination control similar to the CV200, but an optional regulated or unregulated pilot is also available. A regulated pilot can help eliminate expensive service calls in areas of gas pressure fluctuations. Using the CV300 helps to reduce the cost of installation and eliminates the need to stock a separate pilot regulator. Another advantage of the CV300 is its greater range of regulation, up to 80,000 Btu/hr. Applications for the CV300 include gas fireplaces, commercial cooking appliances, and patio heaters.



Direct Gas Fired Make-Up Air Unit

# Basic Operation

## Operation

The CV100 combines an electrical shut-off valve with a pressure regulator. The CV200 and CV300 combine two electrical shut-off valves (redundant) with a pressure regulator.

## Shut-off Valve

The shut-off valves are normally closed solenoid valves. When the solenoids are energized, the valves open and gas flows from the inlet through the upstream valve opening to the regulator. Gas then passes through the downstream valve to the outlet and the appliance.

## Regulator Function

The CV100 regulator is located upstream of the shut-off valve. The CV200 and CV300 regulator is located between the upstream valve and the downstream valve and controls the outlet pressure. There are three key functions in the regulator section of the valve. A diaphragm senses changes in outlet pressure with reference to atmospheric pressure. The spring provides a standard to which the controlled pressure is referred, and a variable restrictor, or poppet valve, moves in accordance with the diaphragm / spring assembly to maintain a regulated outlet pressure.

## Diaphragm Function

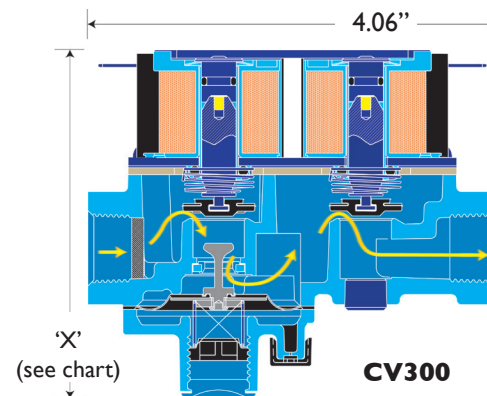
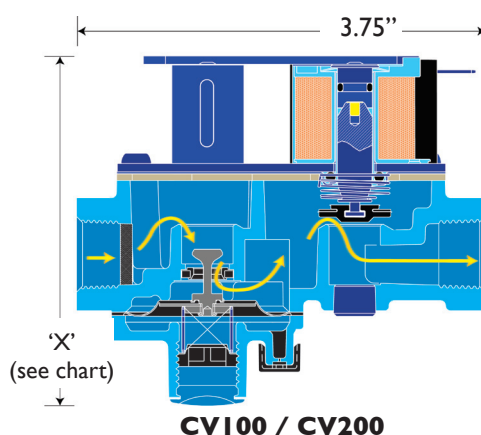
The gas flow stays on the side of the diaphragm opposite the spring. The spring side of the diaphragm is open to the atmosphere by a vent in the lid. Changes in inlet gas pressure or downstream flow requirements (which could change outlet pressure) are sensed by the diaphragm / spring assembly. This sensing action causes movement of the variable restrictor (valve) such that outlet pressure is kept constant.



# Dimensions

Model Type "X"	100 / 200	300
Fixed	3.14"	3.48"
Adjustable	3.21"	3.54"
Convertible	3.46"	3.79"

Note, dimensions are maximums and are to be used only as an aid in designing clearance for the regulator. Actual production dimensions are as cast  $\pm 0.02$  inch. Maxitrol Company reserves the right to change specifications without notice.



	<b>CV100</b>	<b>CV200</b>	<b>CV300</b>
Solenoid Shut-off Valve w/ Built-in Pressure Regulator	single solenoid	dual solenoid	dual solenoid
CSA Certified	X	X	X
UL Recognized		X	
Capacity at 1.0" w.c. Pressure Drop	@ 42,000 Btu/hr NG	@ 42,000 Btu/hr NG	@ 75,000 Btu/hr NG
Range of Regulation	2,500 to 45,000 Btu/hr	2,500 to 45,000 Btu/hr	10,000 to 80,000 Btu/hr w/ pilot 500 Btu/hr
Operating Temperature Range	-40° to 175°F	-40° to 175°F	32° to 175°F STD -40° to 175°F optional
Rated Inlet Pressure	1/2 psi maximum	1/2 psi maximum	1/2 psi maximum
Inlet Connection (metric and/or standard) (For other sizes consult Maxitrol Company)	3/8" NPT side inlet= 3/8" NPT 3/8" INV Flare 1/4" NPT	3/8" NPT side inlet= 3/8" NPT 3/8" INV Flare 1/4" NPT	3/8" NPT 1/2" NPT
Outlet Connection (metric and/or standard) (For other sizes consult Maxitrol Company)	1/8" NPT 3/8" NPT 3/8" INV Flare 1/4" NPT	1/8" NPT 3/8" NPT 3/8" INV Flare 1/4" NPT	3/8" NPT 1/2" NPT 1/2" INV Flare
Right Side Inlet	X	X	
Electronic Ignition - USED AS THE PILOT VALVE	X		
Electronic Ignition Systems - Direct Burner (No Pilot)		X	X
Electronic Ignition Systems - Intermittent Pilot			X
12VDC Coils	X	X	X
24VAC Coils	X	X	X
110VAC Coils	X	X	
Natural, Manufactured, Mixed and Propane (LP) Gases, and LP-Gas Air Mixtures	X	X	X
Screen on Inlet	X	X	X
Outlet Pressure: 2.0" w.c. to 3.0" w.c. NG	X	X	
Outlet Pressure: 3.0" w.c. to 4.0" w.c. NG	X	X	X
Outlet Pressure: 3.0" w.c. to 5.0" w.c. NG	X	X	
Outlet Pressure: 4.0" w.c. to 5.0" w.c. NG	X	X	X
Outlet Pressure: 9.0" w.c. to 11.0" w.c. LP	X	X	X
Convertible Outlet Pressure: 3.5" w.c. NG / 10.0" w.c. LP	X	X	
Convertible Outlet Pressure: 5.0" w.c. NG / 10.0" w.c. LP			X
Screen on Outlet	X	X	
Pressure Regulated Pilot Gas Outlet			X
Electric Switch for Gas Shut-off		X	X
Mounting Bracket	X	X	X
Side Mounting Bracket			X
Conduit Connection (110VAC only with coil config B only)	X		
Outlet Pressure Adjustment (adjustable, convertible, fixed)	X	X	X

