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V4295A, S V8295A, S

SOLENOID GAS VALVES

INSTRUCTION SHEET

The electrically operated V4295A, S and V8295A, S Solenoid Gas Valves control the flow of natural and LP (liquified petroleum) gases.

These valves are used on atmospheric boilers, commercial water heaters, roof-top make-up air burners, power burners and boilers.

Features

- V4295A, S are used with 120 Vac controllers; V8295A, S are used with 24 Vac controllers.
- Models available in Normally Closed and Normally Open configurations.
- Normally Closed models, for safety shut-off applications, consist of a direct on/off operator for opening and closing of the valve.
- Normally Open models, for vent (double block and bleed) valve applications, consist of a direct electric on/off operator for closing and opening of the valve.
- Models are suitable for the control of gaseous fluids in gas consuming appliances according to international standards.
- Models have NPT $\frac{1}{4}$ inch inlet and outlet pressure taps.
- Models have inlet screen to protect the valve from the entry of dirt.

Specifications

Models

V4295A Normally Closed (N.C.) Safety shut-off Valve

V4295S Normally Open (N.O.) Vent Valve

V8295A Normally Closed (N.C.) Safety shut-off Valve

V8295S Normally Open (N.O.) Vent Valve

Type of gas

Air, Natural, Manufactured, Mixed and LP gas.

Valve capacities

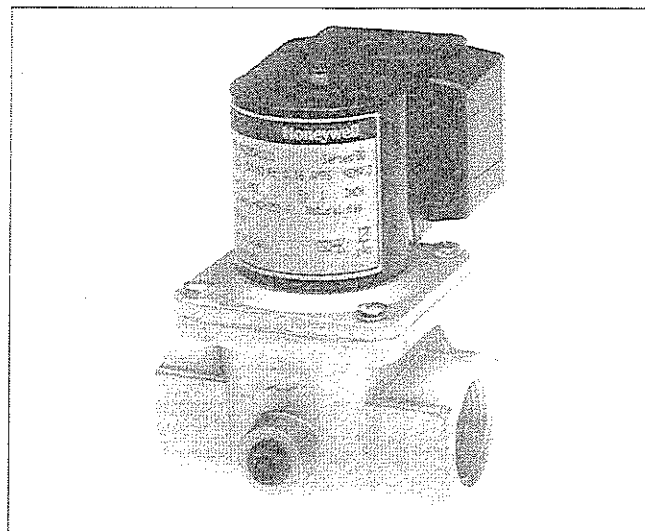
Refer to figure 1 and 2

Valve pattern

Straight through, non-offset

Body material

Die cast aluminum



Electrical terminations

Screw terminal connections

Valve opening time

Less than 1 second

Valve closing time

Less than 1 second

Maximum operating pressure

$\frac{3}{8}$ inch through 3 inch pipe sizes: 2 psi

$\frac{3}{8}$ inch through 2 inch pipe sizes: 5 psi

Current draw

Normally Closed (N.C.) Pipe size (inch)	V4295A		V8295A
	120 Vac		24 Vac
	2 psi	5 psi	2 psi
$\frac{3}{8}$ and $\frac{1}{2}$	0.160 A	0.160 A	0.80 A
$\frac{3}{4}$ and 1	0.160 A	0.200 A	0.80 A
1- $\frac{1}{4}$	0.340 A	0.550 A	1.60 A
1- $\frac{1}{2}$	0.300 A	0.550 A	1.70 A
2	0.525 A	0.540 A	2.80 A
2- $\frac{1}{2}$	0.575 A	n/a	n/a
3	0.675 A	n/a	n/a

Normally Open (N.O.) Pipe size (inch)	V4295S	V8295S
	120 Vac	24 Vac
	2 psi	
$\frac{3}{4}$ and 1	0.160 A	0.80 A
1- $\frac{1}{4}$	0.340 A	2.40 A

Table 1. Models available

Model	Voltage/Frequency	Maximum pressure		Pipe size (inch)	Thread type
		psi	mbar		
V4295A (N.C.)	110/120 Vac, 50/60 Hz	2.0	140	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, 1- $\frac{1}{4}$, 1- $\frac{1}{2}$, 2, 2- $\frac{1}{2}$, 3	NPT
V4295A (N.C.)	110/120 Vac, 50/60 Hz	5.0	350	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, 1- $\frac{1}{4}$, 1- $\frac{1}{2}$, 2	NPT
V4295S (N.O.)	110/120 Vac, 50/60 Hz	2.0	140	$\frac{3}{4}$, 1, 1- $\frac{1}{4}$	NPT
V8295A (N.C.)	24 Vac, 50/60 Hz	2.0	140	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, 1- $\frac{1}{4}$, 1- $\frac{1}{2}$, 2	NPT
V8295S (N.O.)	24 Vac, 50/60 Hz	2.0	140	$\frac{3}{4}$, 1, 1- $\frac{1}{4}$	NPT

Capacity in cfh at pressure drop of 1 inch water column sp. gr. = 0.64 for V4295A, V8295A (N.C.)

	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1- $\frac{1}{4}$ "	1- $\frac{1}{2}$ "	2"	2- $\frac{1}{2}$ "*	3"
2 psi	230	250	645	790	1,450	2,190	3,465	5,070	6,100
5 psi	210	290	610	825	1,950	2,270	3,740	n.a.	n.a.

* V4295A only

Capacity in cfh at pressure drop of 1 inch water column sp. gr. = 0.64 for V4295S, V8295S (N.O.)

$\frac{3}{4}$ "	1"	1- $\frac{1}{4}$ "
350	420	1,100

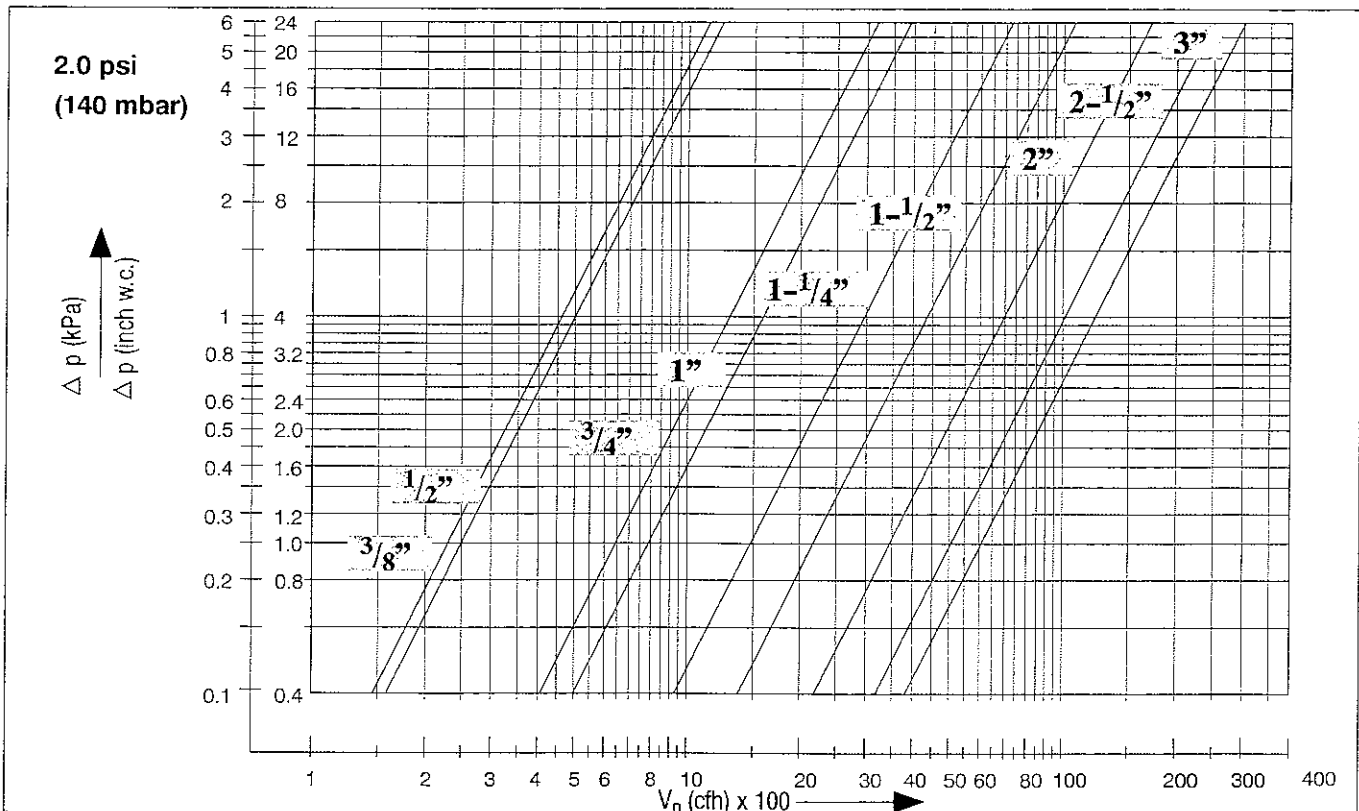


Figure 1. Capacity curves for V4295A and V8295A, 2 psi versions

Ordering information

When purchasing replacement and modernization products from your solenoid valve distributor, refer to the TRADELINE Catalog for complete ordering number.

If you have additional questions, need further information, or would like comment on our products or services, please write or phone:

1. Your local Home and Building Control Sales Office (check with pages on your phone directory)
2. Home and Building Control customer Satisfaction

Honeywell Inc., 1885 Douglas Drive North
 Minneapolis, Minnesota 55422-4386 (612) 951-1000

In Canada - Honeywell Limited/Honeywell Limitee, 740 Ellesmere road, Scarborough, Ontario M1P2V9. International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Italy, Japan, Mexico, The Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

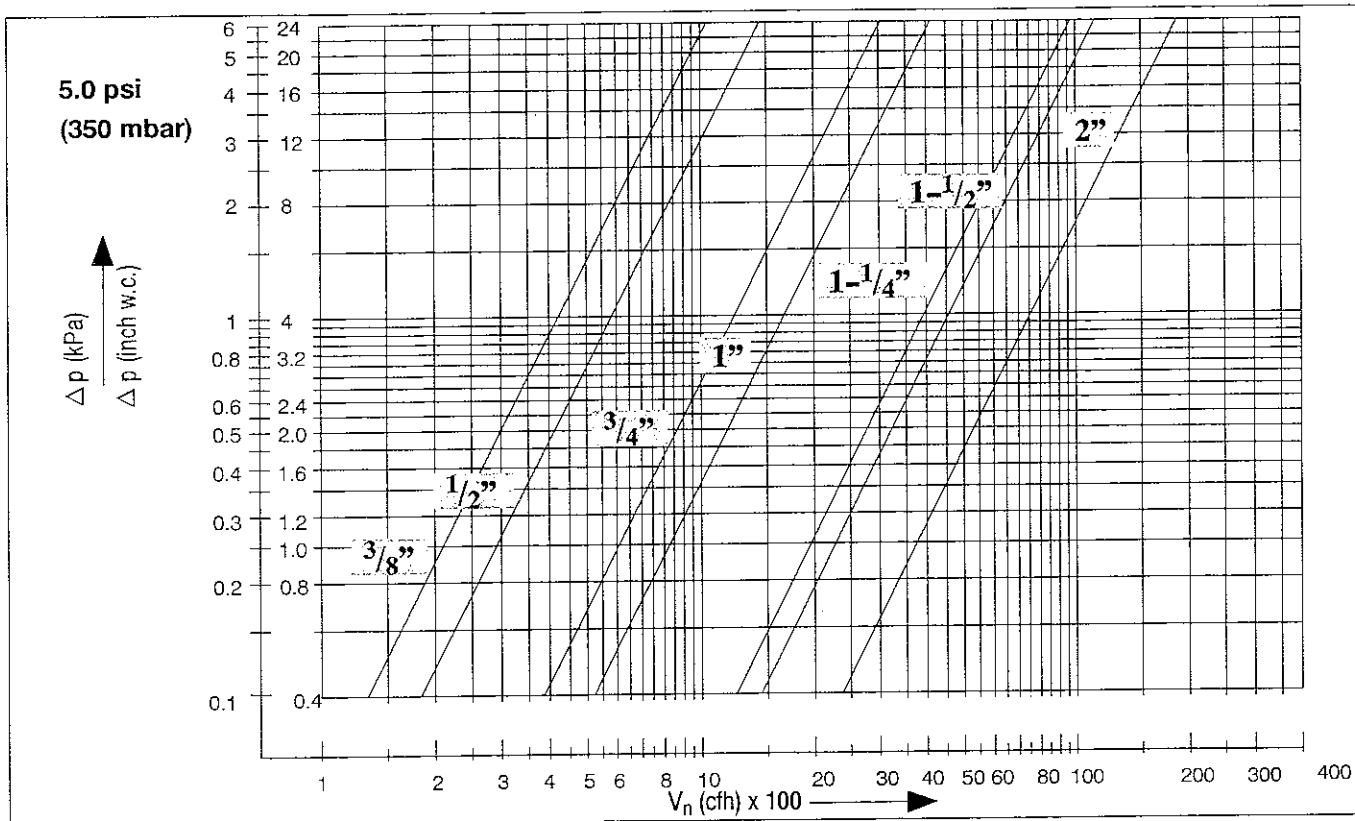


Figure 2. Capacity curves for V4295A, 5 psi versions

Ambient temperature rating

- 40 °F to 145 °F (- 40 °C to 63 °C)

Maximum fluid temperature rating

- 40 °F to 145 °F (- 40 °C to 63 °C)

Mounting position

Vertical to 90 degrees from vertical, refer to figure 5.

Dimensions and weight

Refer to figure 3. and figure 4.

Approvals

Underwriters Laboratories, Inc., File Number MH 18476,
Guide number YLOZ

AGA and CGA, File Number C2030014

Complies with standard ANSI Z21.21-CGA6.5

Automatic Valves for gas appliances and automatic safety shut-off gas valves (revised edition of the former ANSI Z21.21, CAN/CGA-6.5-M89, CAN/CGA-3.9-M87)

Factory Mutual (³/₈" , ¹/₂" and ³/₄" only),

CSD-1 Acceptable.

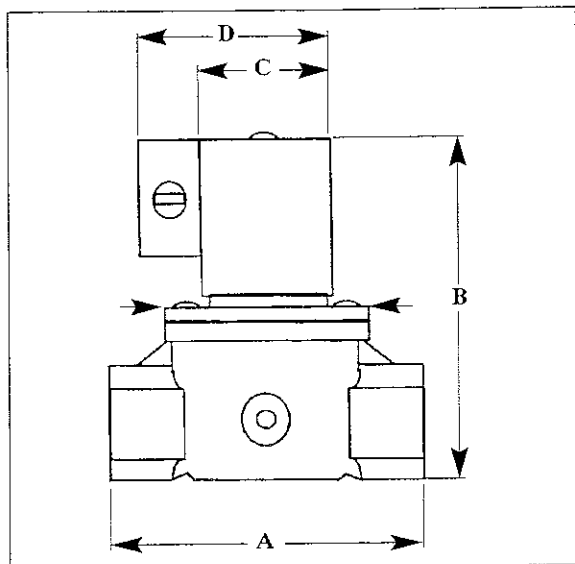


Figure 3. Dimensions and weight

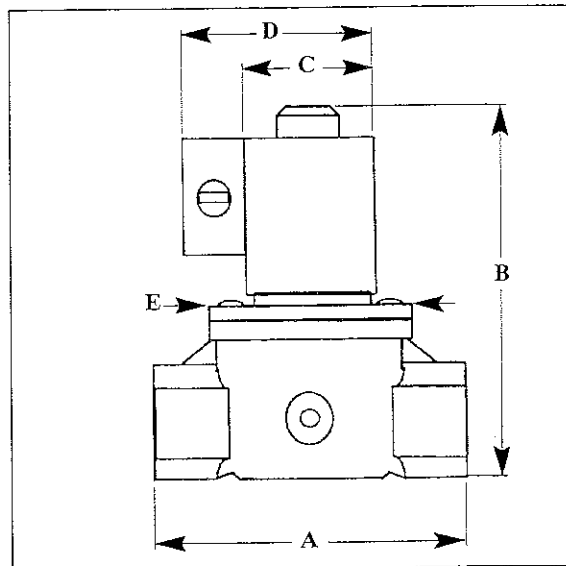


Figure 4. Dimensions and weight

Normally Closed (Fig. 3.)

Pipe size	A (inch)	B (inch)		C (inch)		D (inch)		E (inch)	Weight (lbs)	
		2 psi	5 psi	2 psi	5 psi	2 psi	5 psi		2 psi	5 psi
3/8" NPT	2-7/8	4-7/16	4-7/16	2-3/16	2-3/16	3-3/4	3-3/4	2-3/16	2.5	2.2
1/2" NPT	2-7/8	4-7/16	4-7/16	2-3/16	2-3/16	3-3/4	3-3/4	2-3/16	2.5	2.2
3/4" NPT	3-7/16	5-1/4	3-3/16	2-3/16	2-1/2	3-3/4	4-1/16	2-3/4	4.0	4.4
1" NPT	3-15/16	5-1/4	6-5/16	2-3/16	2-1/2	3-3/4	4-1/16	3	4.5	4.4
1-1/4" NPT	5-15/16	8	8-9/16	2-1/2	3-5/16	4-1/16	4-15/16	4-3/8	12.8	10.6
1-1/2" NPT	5-15/16	8-3/8	8-9/16	3-3/8	3-5/16	4-15/16	4-15/16	4-3/8	12.8	10.6
2" NPT	6-11/16	8-3/8	9-3/16	3-3/8	3-3/4	4-15/16	5-5/16	5-3/8	14.0	13.4
2-1/2" NPT	9-1/2	12-3/4	-	4-9/16	-	6-1/8	-	7-7/8	28.5	-
3" NPT	9-1/2	12-3/4	-	4-9/16	-	6-1/8	-	7-7/8	31.0	-

Normally Open (Fig. 4.)

Pipe size	A (inch)	B (inch)	C (inch)	D (inch)	E (inch)	Weight (lbs)
3/4" NPT	3-7/16	5-1/2	2-3/16	3-3/4	2-3/4	4.0
1" NPT	3-15/16	5-1/2	2-3/16	3-3/4	3	4.5
1-1/4" NPT	5-15/16	8-3/4	2-1/2	4-1/16	4-3/8	12.8

Accessories

The actuator (coils) are field replaceable.

Specify complete valve O.S. number in order to provide the coil with the proper product identification label.

Valve size (inch)	Type	Coil part number, 120 Vac, 50/60 Hz		Coil part number, 24 Vac, 50/60 HZ
		2 psi	5 psi	
3/8, 1/2	N.C.	BBA51302	BBA51302	BBA52402
3/4	N.C.	BBA51302	BBA51314	BBA52402
1	N.C.	BBA51302	BBA51309	BBA52402
1-1/4	N.C.	BBA51303	BBA51310	BBA52403
1-1/2	N.C.	BBA51301	BBA51310	BBA52401
2	N.C.	BBA51304	BBA51311	BBA52404
2-1/2	N.C.	BBA51305	n/a	n/a
3	N.C.	BBA51306	n/a	n/a
3/4, 1,	N.O.	BBA51307	n/a	BBA52407
1-1/4,	N.O.	BBA51308	n/a	BBA52408

3. Installer must be a trained, experienced, flame safeguard control technician.
4. After installation is complete, check out product operation as provided in these instructions.

CAUTION!!!

1. Turn off gas supply before starting installation.
2. Disconnect power supply before beginning installation to prevent electrical shock and equipment damage.
3. Do not remove seal over valve inlet or outlet until ready to connect piping.

Prepare piping and install valve (Figure 5.)

1. Use new, properly reamed pipe which is free from chips.
2. Do not thread pipe too far.
3. Apply good quality pipe dope resistant to the action of LP gas, putting a moderate amount on the male threads only. If pipe dope lodges on the valve seat, it will prevent proper closure.
4. Install valve in a horizontal pipe line, (refer to figure 5. for mounting position) with the gas flow matching the direction indicated by the arrow on the casting.
5. Apply a parallel jaw wrench only to the flat next to the pipe being inserted. A wrench applied to the valve body itself or to the end farthest from the pipe being inserted may distort the casting resulting in malfunction on the gas valve.
6. The gas flow *must* be in the same direction as the arrow on the body of the valve.

Installation

When installing this product....

1. Read these instruction carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.

WARNING !!!

If the flow is not in the same direction of arrow, valve may not shut off.

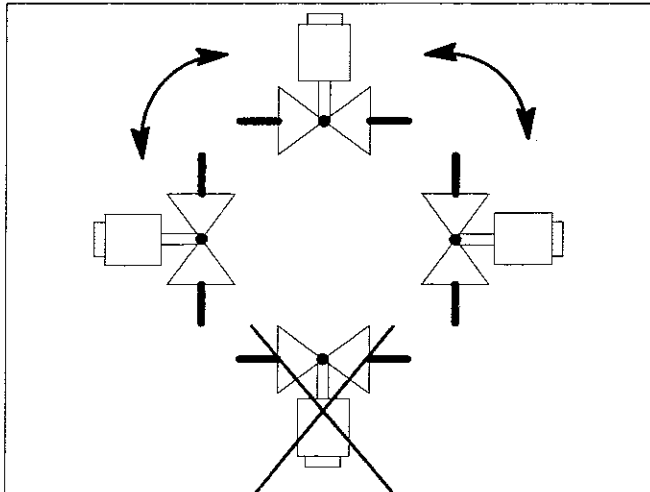


Figure 5. Mounting position

7. Make electrical connections as illustrated in the wiring diagrams; see Figure 6.
8. Turn on main gas and with a soap solution, check valve installation for leaks.

Wiring

1. Disconnect power supply *before* making wiring connections to prevent electrical shock and equipment damage.
2. Installation and wiring must be in conformance with National Electrical Code ANSI /NFPA 70, local codes and regulations
3. For normal installations, use moisture-resistance No. 14 wire suitable for at least 167 °F (75 °C) if using a Flame Safeguard Primary Control, or 194 °F (90 °C) if using a Flame Safeguard Programming Control.
4. For high temperature installations, use moisture resistant No. 14 wire selected for a temperature rating above the maximum operating temperature.
5. Check the power supply circuit. The voltage and frequency must match those of the valve.
6. Refer to Figure 6. for typical V4295A, S field wiring with RM7800 (typical) Primary Safety Control. Refer to Figure 7. for typical V8295A, S field wiring with Primary Safety Control. Follow the burner manufacturer's wiring diagram, when provided. Refer to burner controller (primary safety control) wiring diagram for specific wiring terminal designations.
7. Make wiring connections at the electrical terminations provided in the wiring compartment of the valve.

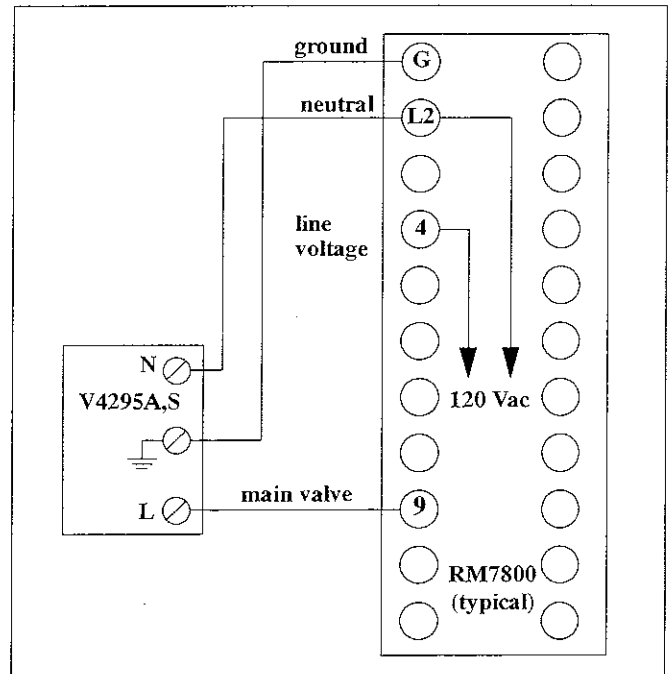


Figure 6. Wiring, V4295A, S

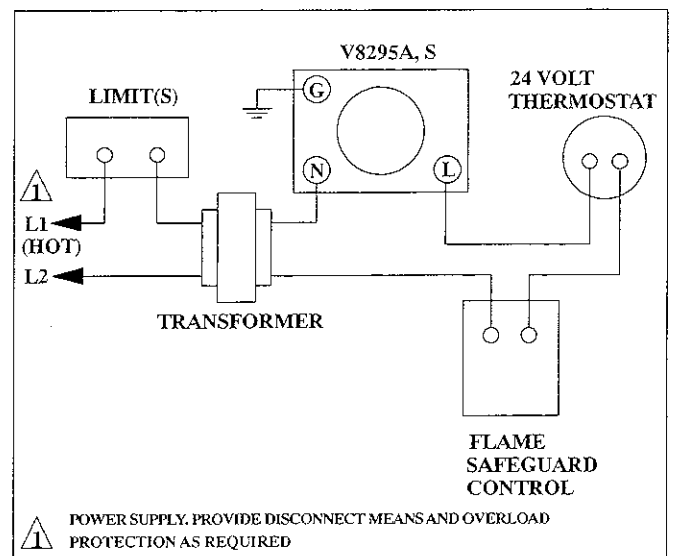


Figure 7. Wiring, V8295A, S

Operation

The V4295A and V8295A Normally Closed series gas valves are Class B fail safe shut off valves. The valve is opened by energizing the direct ON/OFF operator. The direct ON/OFF operator consists of a coil and stop sleeve assembly. Inside the stop sleeve assembly is a plunger which is able to move up and down, thus opening or closing the valve. The plunger glides on two anti-friction bearings. A strainer, made of AISI 303 stainless steel is incorporated into the valve.

Checkout and troubleshooting

WARNING!!!

Do not allow fuel to accumulate in the combustion chamber. If fuel is allowed to enter the chamber for longer than a few seconds without igniting, an explosive mixture could result.

CAUTION!!!

1. Do not put the system into service until you have satisfactorily completed all applicable tests described in the Checkout section of the instructions for the flame safeguard control and any other test required by the burner manufacturer.
 2. Close *all* manual fuel shut off valves as soon as trouble occurs.
-

Checkout

1. Check the performance of the valve by measuring the pressures at the inlet and outlet pressure taps. The pressure reading at the outlet tap may be slightly higher than a downstream measurement due to dynamic gas flow effects. The measurement at the outlet tap is for reference only.
 2. Shut off gas supply to valve and make sure valve is closed when setting up pressure measuring equipment.
 3. Set thermostat or controller to energize the valve and check final outlet pressure.
 4. Start the system and observe its operation through at least one complete cycle to ensure the valve functions as described in the Operation section.
-

Troubleshooting

CAUTION!!!

Use utmost care during troubleshooting. Line voltage is present at the actuator for V4295A, S and present in controller circuits. Low voltage (24 Vac) is present at the actuator for V8295A, S and present in controller circuits.

IMPORTANT

Do not assume that the valve must be replaced until all other sources of trouble have been eliminated.

A. If the valve will not open when the thermostat or controller is calling for heat:

1. Check that there is voltage at the valve actuator lead wires or terminal block.

CAUTION!!!

Line voltage (120 Vac) should be present when the primary safety control energizes the V4295A,S valve actuator. 24 Vac should be present when the primary safety control energizes the V8295A, S valve actuator.

2. If there is no voltage at the actuator, first ensure line voltage power is connected to the master switch, the master switch is closed and overload protection (circuit breaker, fuse or similar device) has not opened the power line.
3. If there is still no voltage at the actuator, make sure all appropriate contacts in the thermostat (or controller), limit(s) and flame safeguard control are closed. If one or more are open, determine the cause(s) and correct condition(s) before proceeding.
4. If there is proper voltage at the actuator but the valve still does not open, first check that the gas pressure is normal.
5. If the valve still does not open, replace valve.

B. If the valve will not close when one or more of the appropriate contacts in the thermostat (or controller), limit(s) or flame safeguard control is open:

1. Make sure that the gas flow is in the direction of the arrow on the valve body.
 2. Make sure the valve actuator is wired in the correct circuit. Open the master switch to remove power from the actuator. If the valve closes now, the actuator may not be wired properly.
 3. Look for a short in the electrical circuit.
-

Service information

CAUTION!!!

1. Only qualified service technicians should attempt to service or repair flame safeguard control and burner.
 2. Line voltage is present in the electrical circuits to the valve. Open the master switch before replacing the valve.
-

CAUTION!!!

1. Label all wires prior to disconnection when servicing valves. Wiring errors can cause improper and dangerous operation.
 2. Verify proper operation after servicing.
-

ATTENTION!!!

1. Au moment de l'entretien des commandes, étiquetez tous les fils avant le débranchement. Des erreurs de câblage peuvent nuire au bon fonctionnement.
 2. S'assurer que l'appareil fonctionne adéquatement une fois l'entretien terminé.
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Scheduled inspection and maintenance

For periodic inspection and maintenance, set up a schedule and follow it. Include the burner, valves and all other burner controls. Refer to the flame safeguard control instructions for more information.
