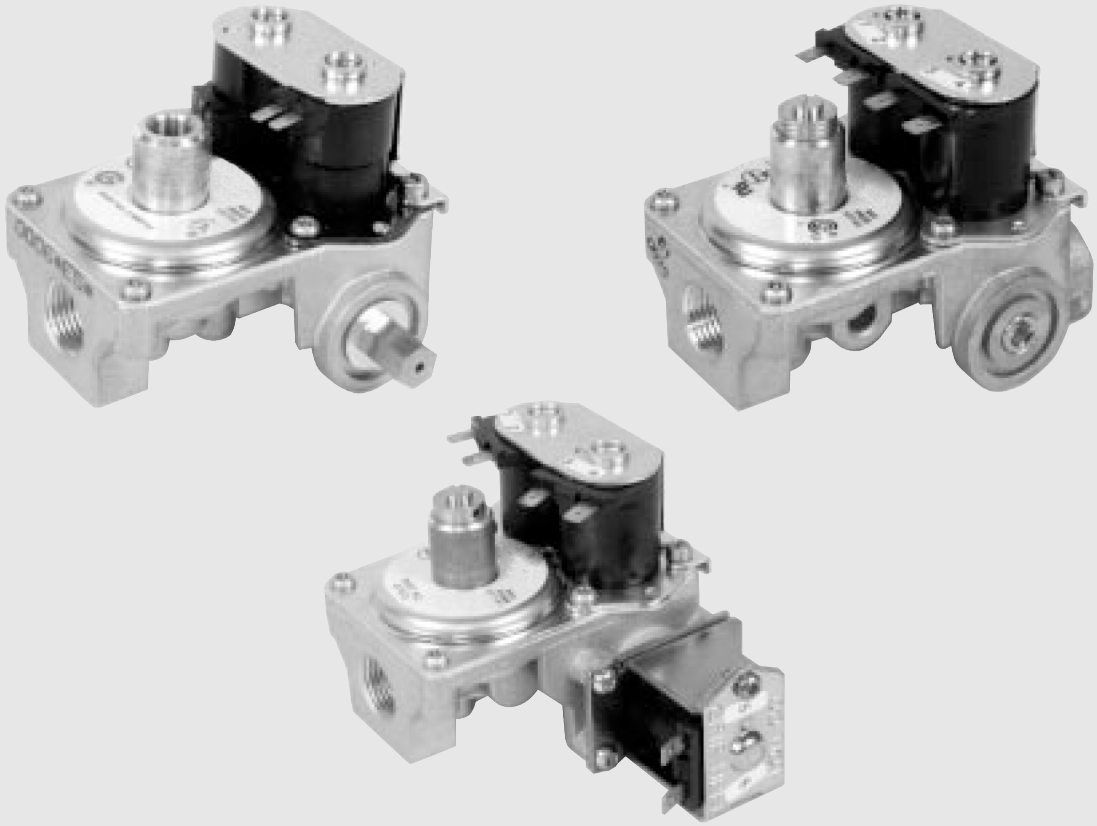
25M series gas controls product information

The 25M series gas control is a compact, multifunctional valve, with a direct-acting regulator ideal for use in pilot valve applications, thru-the wall heaters, RV heaters, gas clothes dryers, hearth products, radiant heat systems, water heaters, cooking applications, agricultural heaters/dryers, or other high-efficiency equipment.



WHITE-RODGERS
by COPELAND

The 25M valve, provided with a straight-in inlet, has various outlet configurations that, when coupled with the various pipe sizes available, make for easy adaptation to a given application.

Optional features, such as the inlet pressure tap, increase the flexibility in adapting this valve.

Available configurations include:

- Single Solenoid (for pilot valve applications)
- Dual Solenoid, Valves in Series (for applications requiring redundancy)
- Dual Solenoid, Valves Independent (for dual burner applications)
- Split-Coil (for use with Hot Surface Ignition systems)
- Two-Stage (for applications requiring both high-fire and low-fire settings)

General specifications

Standard features

25M Appliance	25M Manifold	
X	X	Compact Size (3-13/32″ x 2-1/2″ - 2-19/32″)
X		Split Coil
	X	Single Solenoid
	X	Dual Solenoid
X	X	Inlet Screen (protected from pipe damage)
X	X	Outlet Screen (protected from pipe damage)
X	X	Field Adjustable Regulator
X	X	Replaceable Operating coils without interrupting gas flow
X	X	Outlet Pressure Tap
X		Ambient Temperature Rating: 32° to 155°F
	X	Ambient Temperature Rating: 32° to 175°F
X	X	Straight Through Outlet (offset)
X		.110 x .010 Male Terminals
	X	3/16″ Male Tab Type Terminals

Optional features

25M Appliance	25M Manifold	
X		Orifice Holder Outlet
X	X	Right/Left Angle Outlets
	X	Dual Outlets (Right-Angle-Left AND Right-Angle-Right or Straight Through
	X	Inverted Flare
	X	British Threads (Rp)
	X	Inlet Pressure Tap
	X	Natural to LP Regulator Selector (convertible)
	X	European Quiet-Type Solenoids
	X	Encapsulated Leads
	X	Ground Terminal
	X	Tamper Evident Regulator Seal
	X	Low Ambient Temperature Rating (-40° to 175°F)
	X	High Capacity Model (60 KBTU Natural Gas)
	X	Two-Stage Operation (Right-Angle-Left or Right-Angle-Right Only)

Regulator adjustment range

Natural Gas: 2.8″ to 4.0″ W.C.
3.5″ to 5.4″ W.C.

LP Gas: 8.5″ to 11.4″ W.C.
9.0″ to 12.0″ W.C.

Range of regulations

Natural Gas: 5,000 to 55,000 BTU/hr
5,000 to 65,000 BTU/hr — Dual Solenoid Independent

LP Gas: 8,000 to 89,000 BTU/hr
8,000 to 104,000 BTU/hr — Dual Solenoid Independent

Conversion kits

	Part number	
From Natural Gas to Regulated LP:	F73-1493	Regulates between 9.0″ to 12.0″ W.C.
From LP to Natural Gas:	F73-1561	Regulates between 2.8″ to 4.0″ W.C.
From Natural gas to LP:	F69-2257	Blocks open the Regulator (Blocking Pin)

General specifications

Current requirements

		Operator(s) requirement (amps)	
Voltage	**Frequency**	**Single coil**	**Dual coil, parallel (total draw)**
12	DC	.240	.480
24	DC	.120	.240
24	50 Hz	.210	.420
24	60 Hz	.175	.350
120	50 Hz	.035	.070
120	60 Hz	.030	.060
240	50 Hz	.030	.060
240	60 Hz	.025	.050

Split-coil versions				
Model #	**Rated volts**	**Hertz**	**Operating mode**	**Comments**
25M01A	120 120	60 60	Start Running	Glo-Bar On, Sensor Closed Glo-Bar Off, Sensor Open
25M01B	120 120	50 50	Start Running	Glo-Bar On, Sensor Closed Glo-Bar Off, Sensor Open

	Split-coil	**Dual solenoid redundant**		**Dual solenoid independent**		**Single solenoid**		**High capacity**
	25M01A	**25M02**	**25M12**	**25M03**	**25M13**	**25M04**	**25M14**	**25M72**
1" P.D. capacity	40K	40K	40K	30K/side*	30K/side*	48K	48K	52K
2" P.D. capacity	60K	60K	60K	35K/side+	35K/side+	70K	70K	73K
Range of regulation	5 to 55K	5 to 55K	5 to 55K	5 to 65K	5 to 65K	5 to 65K	5 to 65K	25 to 85K
Ambient temperature rating	32° to 155° F	32° to 175° F	-40° to 175° F	32° to 175° F	-40° to 175° F	32° to 175° F	-40° to 175° F	-40° to 175° F
Outlet pressure adjustment range	2.8" to 4.0"	2.8" to 4.0"	2.8" to 4.0"	3.5" to 5.4"	3.5" to 5.4"	2.8" to 4.0"	2.8" to 4.0"	2.8" to 4.0"

* 60K with both solenoids energized
\+ 70K with both solenoids energized

Maximum pressure: 1/2 PSI **Agency approvals:** CSA Int'l all models

Pipe sizes

Inlet: 3/8" or 1/4" NPT or British Threads (Rp)
Straight In

Outlet: 3/8", 1/4", 1/8" NPT or British Threads (Rp)
or Orifice Holder
Right Angle Right (RAR), Right Angle Left (RAL), Offset Straight Through,
or Right Angle Right and Left (Dual Outlet)

General specifications

Regulator operation

The 25M series gas valve utilizes a direct acting regulator construction to maintain proper outlet gas pressure for fluctuating inlet pressures. (Refer to Fig. 1)

1) Calibration

The regulator is adjusted at the factory to give the outlet pressure to an orifice as required by the customer (This is referred to as the set point). The outlet pressure (B) and the orifice are selected by the customer to give the desired flow rate of gas necesary for his application. This adjustment is made at an inlet pressure (A) of 7.0" W.C. for natural gas and 14.0" for L.P. gas.

2) Flucuating Inlet Pressure (A)

When the inlet pressure (A) increases, the outlet pressure (B) starts to increase, but the increasing force created on the diaphragm causes the stem to move closer to the seat thereby throttling the flow and reducing the pressure onto the diaphragm. As this pressure decreases the stem moves away from the seat allowing more flow and higher outlet pressure (B). The outlet pressure, therefore, modulates (high frequency and small amplitude) with respect to the set point. This is normal operation for direct acting types of regulators.

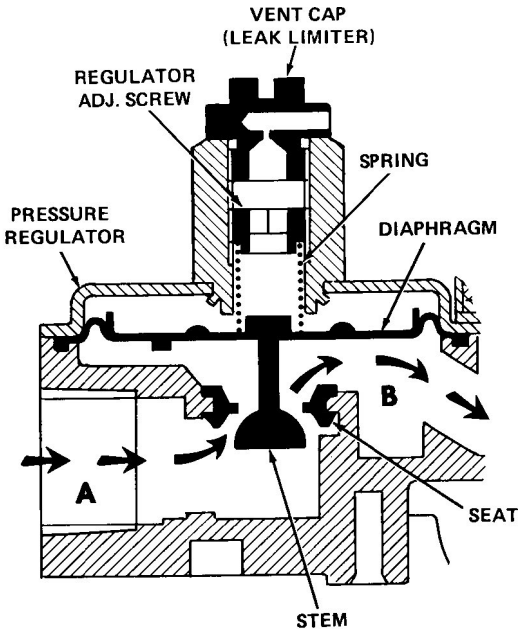
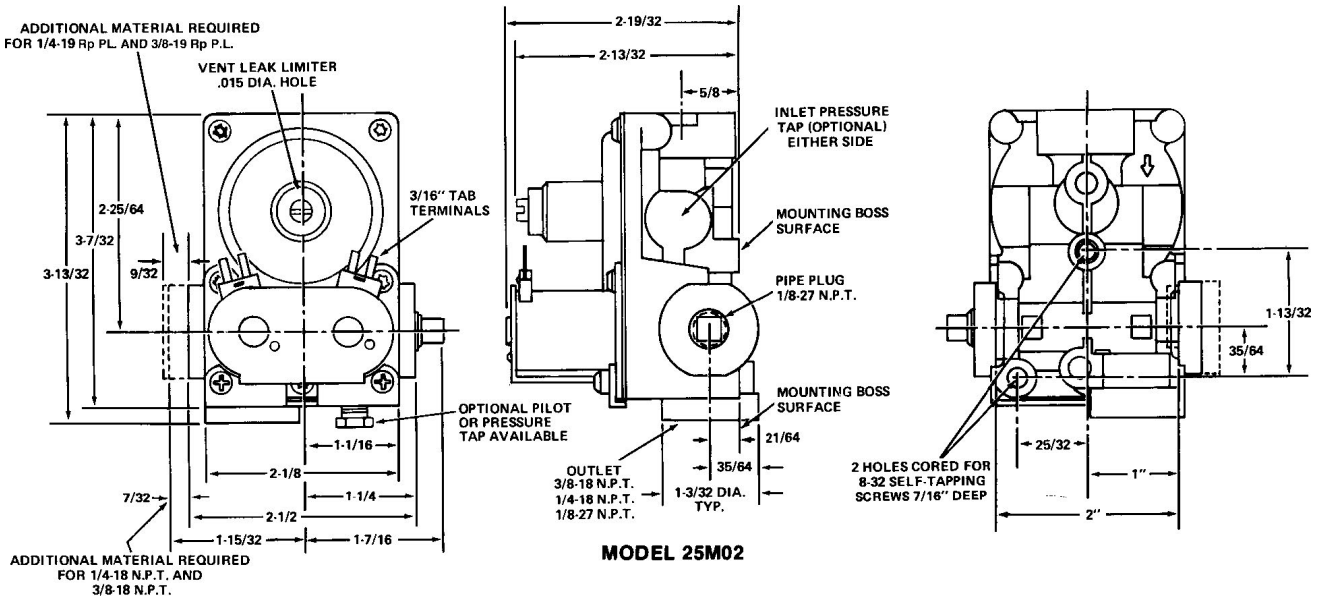


Figure 1

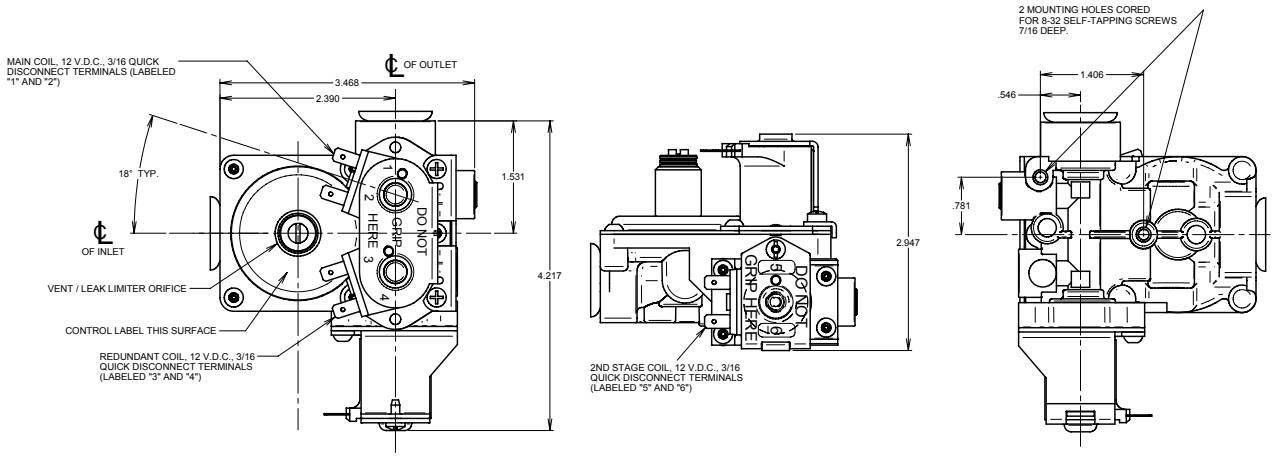
Outline and mounting dimensions

Single stage model

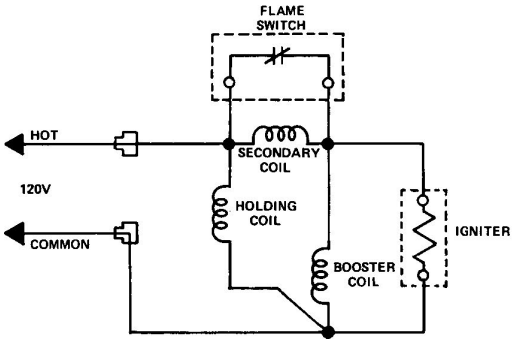


Outline and mounting dimensions (cont.)

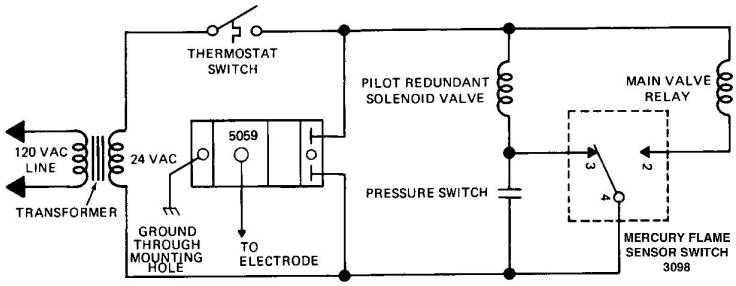
Two stage model



Typical wiring diagrams



Typical wiring diagram for model 25m appliance valve



Typical wiring diagram for model 25m manifold valve

Cross-sectional views

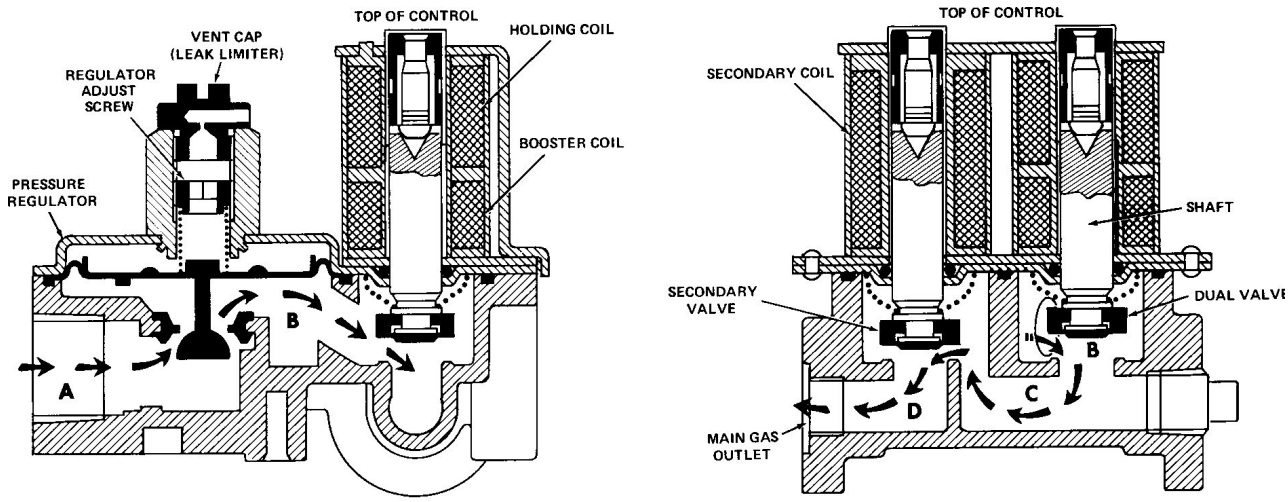


Figure 2 - cross-sectional view of 25m appliance valve

Cross-sectional views (cont.)

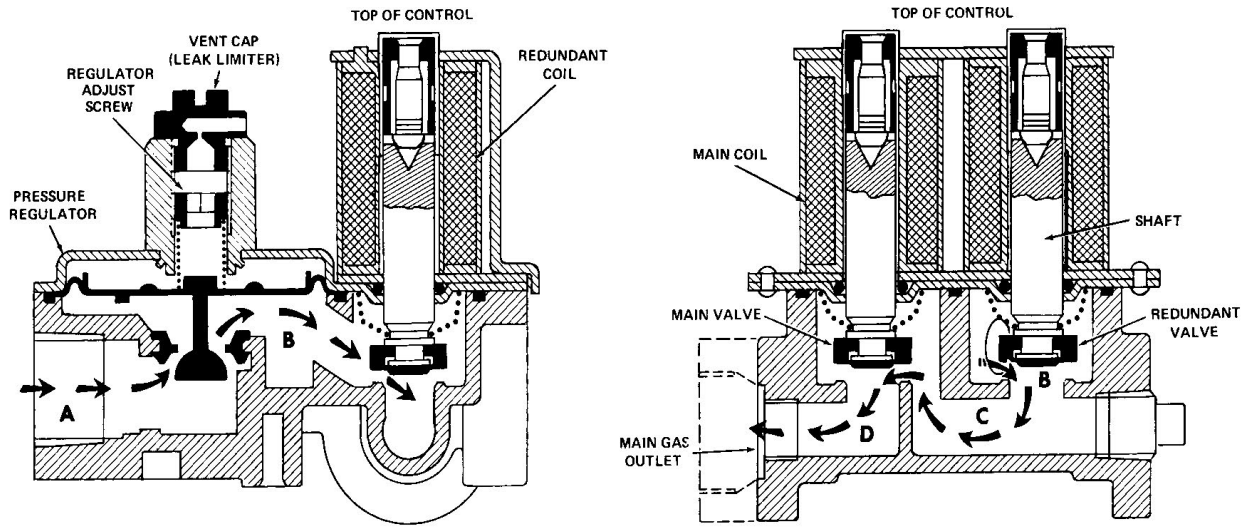
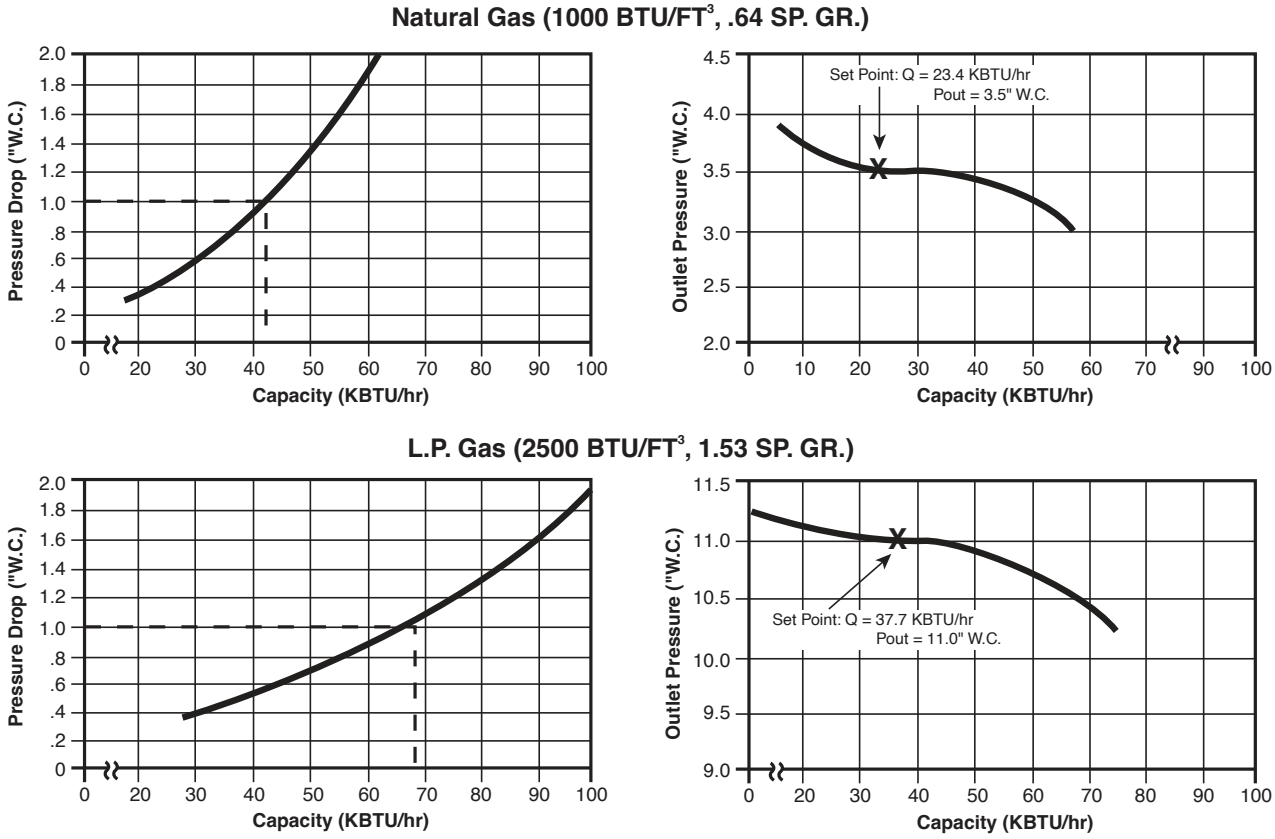


Figure 2 - cross-sectional view of 25m manifold valve

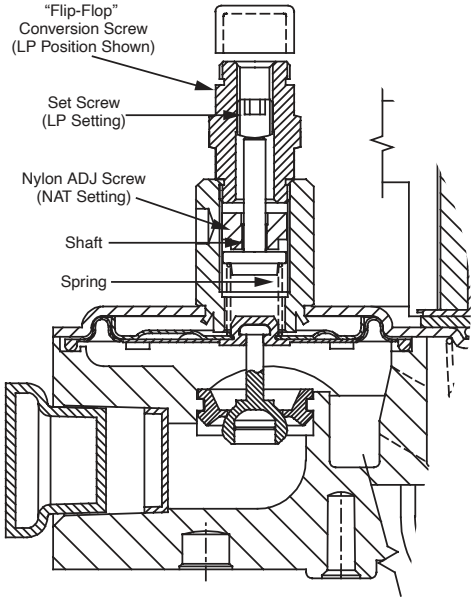
25M performance curves



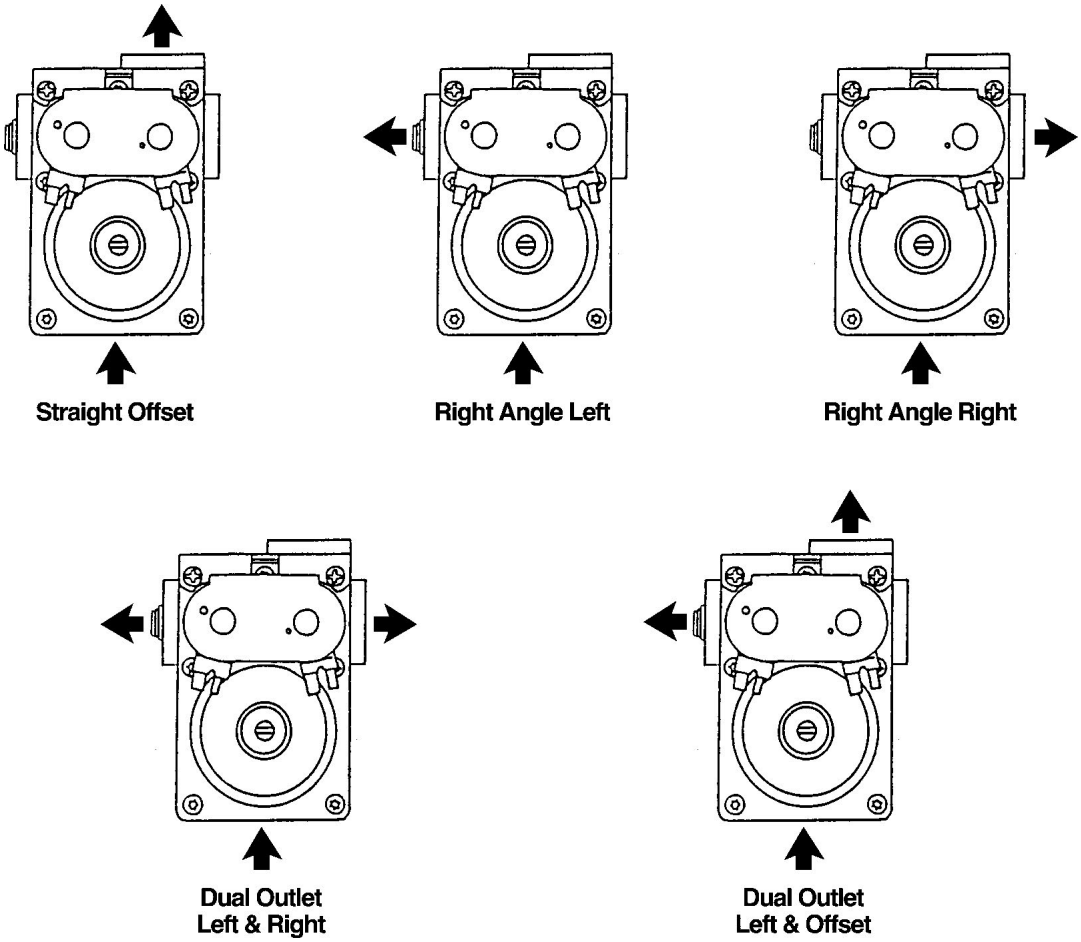
Features

Flip-flop convertible regulator

Conversion from LP to NAT (or vice-versa) accomplished by inverting the position of the conversion screw and replacing the orifice. No further adjustment is required (convertible feature is CSA Int'l approved as a fixed-adjust convertible regulator). No provision for field adjustment as special tool is required.



Alternative gas paths



Note: Inlet & Outlet Pressure Taps available on request

Models available

Each valve is uniquely defined by a model number succeeded by the type number as follows:

25M XX X - XXX

BASIC MODEL NUMBER SERIES

Specification of options/features

01 – Split Coil Model (For use with Power-Vented Si Carbide Ignition Systems), 32˚-175˚ F

02 – Redundant Solenoids (Valves in Series), 32˚-175˚F

03 – Independently Operating Valves (Dual Burner Applications), 32°-175°F

04 – Single Solenoid, 32°-175° F

05 – Two-Stage Manifold, -40°-175° F

11 – Same as 01 except 50 mbar rating

12 – Same as 02 except -40°-175° F rating

13 – Same as 03 except convertible regulator, -40°-175° F rating

14 – Same as 04 except -40°-175° F rating

16 – RV applications, -40°-175° F, high sealing force, regulated LP

18 – RV applications, Nat/LP Convertible (Flip/Flop), -40°-175° F

19 – Same as 16 except fixed regulator, encapsulated leads

22 – Same as 02 except Rp Threads

26 – Same as 12 except Rp Threads

42 – Same as 02 except EN-spec quiet DC, 0°-60° C

43 – Same as 42 except slow-open, 0°-60° C

47 – Same as 17 except EN-spec quiet DC, 0°-60° C

51 – Same as 01 except converted for LP use (regulator blocked open)

72 – Same as 12 except High Capacity

82 – Same as 42 except High Capacity

Type number coding	
Number	**Pipe size (inlet x outlet)**
001-099	Rp Threads
100-199	3/8" x 11/32" (Orifice)
200-299	1/4" x 1/8" NPT
300-399	1/4" x 1/4" NPT
400-499	1/4" x 3/8" NPT
500-599	3/8" x 1/8" NPT
600-699	3/8" x 1/4" NPT
700-750	3/8" x 3/8" NPT
751-799 *(751-779)* *(780-799)*	**Special Fittings** *3/8" x 3/8" Inverted Flare* *3/8" x 1/4" Compression Fitting*
800-899	Regulated LP (25M01)
900-999	Available to be defined

Type numbers also define minor features, such as:
Customer Required Labelling
Inlet/Outlet Configuration
Natural Gas or LP Regulator Setting
Electrical Connections

Voltage letter coding		
Letter	**Voltage**	**Frequency**
None	24	60 Hz
A	120	60 Hz
B	120	50 Hz
C	24	50 Hz
F	100	50 Hz
G	240	60 Hz
H	220	50 Hz
M#	220/240	DC*
P#	24	50/60 Hz
S#	220/240	50/60 Hz
V	12	DC
X#	24	DC*

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