SV - Safety Shutoff Valve with Proof of Closure 1/2" NPT - 2" NPT

SV/614 Series
SV-DLE/614 Series

DUNGS®
Combustion Controls

Normally closed automatic shutoff valve with proof of closure and the following approvals.

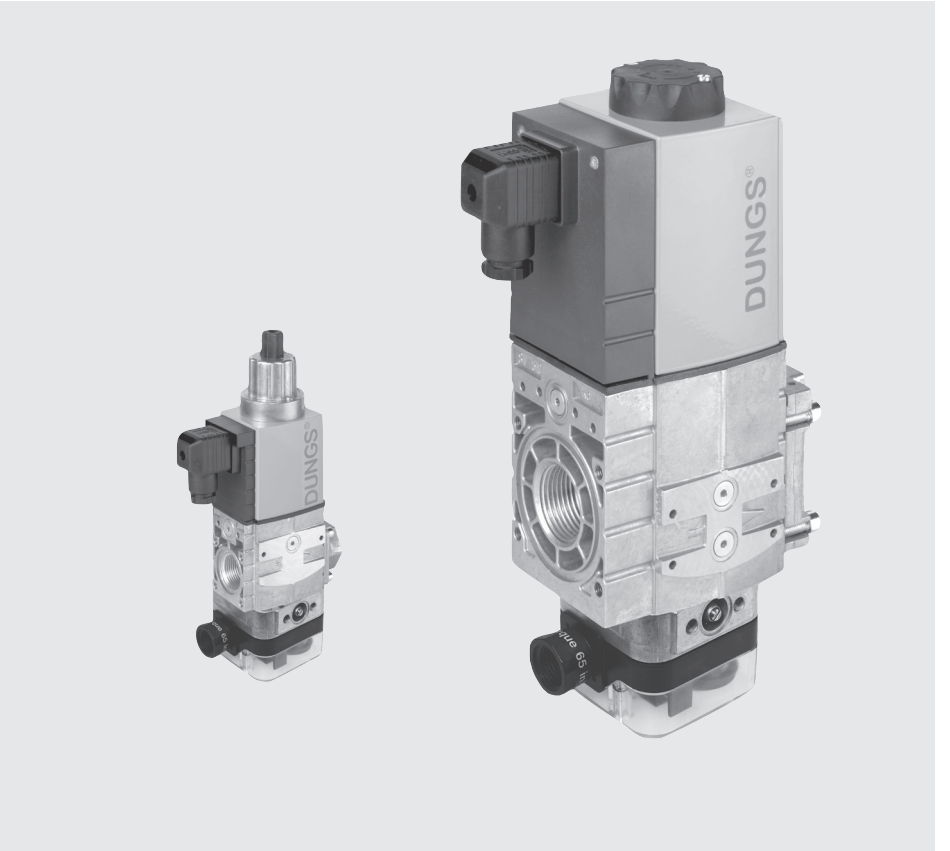
CSA Certified
- ANSI Z21.21 • CSA 6.5
- Marked C/I
- File # 1350312

FM Approved
- Class 7400
- File # 3014562

Commonwealth of Massachusetts Approved Product
- Approval code G1-1107-35
- Gas Safety Shutoff Valve

Codes and Standards
This product is intended for installations covered by but not limited to NFPA 86, NFPA 37, NFPA 160, ANSI Z83.4/ CSA 3.7, ANSI Z83.18/CSA 4.9, ANSI Z21.13, CSD-1, UL 2200, CAN1-3.1, CGA 3.2, CSA 3.8, CSA B149.1, CSA B149.3 CSA B149.6.

DUNGS is an ISO 9001 manufacturing facility.



Technical Description
The SV automatic safety shutoff valve is a single-stage automatic shut-off valve for gas burners and gas burning appliances:

- Double-seated valve with proof of closure.
- Max. operating pressure up to 10 PSI (700 mbar)
- SV: fast-open/fast-close
- SV-DLE: slow-open with adjustable inital lift, fast closing
- Main flow adjustment
- Pipe thread on the inlet side, threaded flange on outlet side
- Threaded flange on the inlet side optional
- High flow rates
- DMV modular mount accessories can be used in most cases

Application
The SV is recommended for industrial and commercial heating applications that require an automatic shutoff valve incorporating proof of closure. The SV is suitable for dry natural gas, propane, butane, air and inert gases. Suitable for up to 0.1% by volume, dry H_2S.

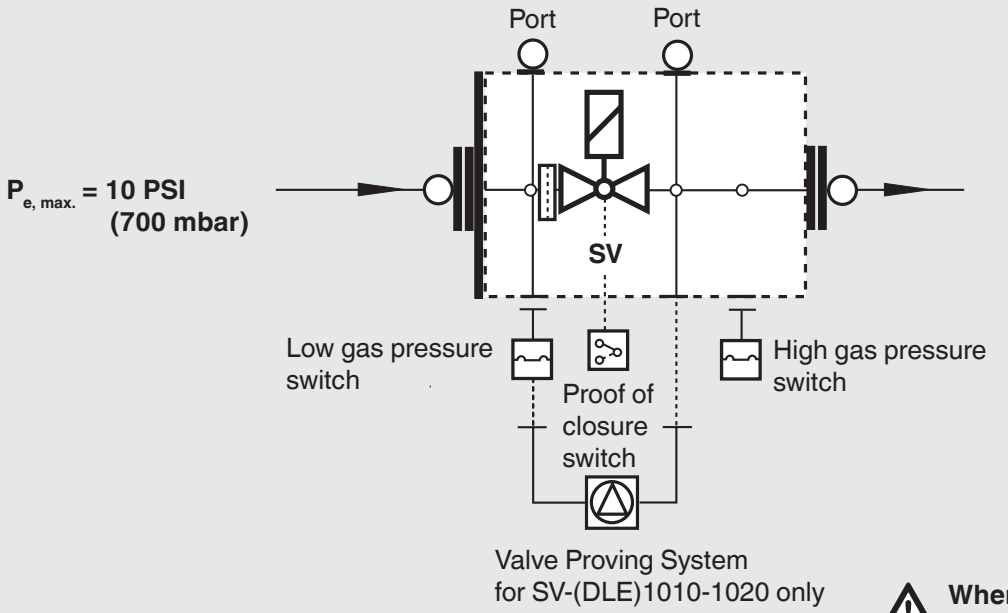
A “dry” gas has a dew point lower than +15 °F and its relative humidity is less than 60 %.

SV.../614	Single-stage automatic shutoff valve, fast-open, fast-closing. Incorporates proof of closure.
SV-DLE.../614	Single-stage automatic shutoff valve, slow opening, fast closing. Adjustable max flow and adjustable initial lift. Incorporates proof of closure.

Specifications

Model Size (NPT)	SV 1005 SV 1007 SV 1010 SV 1012 SV 1015 SV 1020 1/2" 3/4" 1" 1 1/4" 1 1/2" 2" Pipe thread on the inlet side,threaded flange on outlet side
Max. operating pressure	10 PSI (700 mbar)
Max. body pressure	15 PSI (1000 mbar)
Max. close off pressure	15 PSI (1000 mbar)
Electrical ratings (+10 % / -15 %)	120 VAC @ 50 - 60 Hz
Power ratings	See page 5.
Enclosure ratings	NEMA Type 4 for NEMA 4 indoor only NEMA Type 12
Electrical connection	DIN-connector with 1/2" NPT conduit adapter
Operating time	100 % duty cycle
Closing time	< 1 s
Opening time (to max. flow)	SV.../614 < 1 s SV-DLE…/614 Adjustable to approx. 10 to 20 s at 70 °F
Initial lift adjustment	SV-DLE…/614 ONLY 0 to 70 % of total flow; 0 to 35% of stroke
Max. flow adjustment	SV-DLE…/614 ONLY 0 to 100 % of total flow; 0 to 100% of stroke. When adjusted to low flows, flow repeatability upon opening is +/-15%.
Materials in contact with gas	Housing: Aluminium, Steel; free of non-ferrous metals Sealings on valve seats: NBR-based rubber
Ambient temperature rating	-40 °F to +140 °F (-40 °C to +60 °C)
Installation position	Safety shut off valve from vertically upright to horizontal
Test ports / Pressure switch mounting ports	SV and SV-DLE: G 1/8 ISO 228 ports available. See page 3 and 4 for details.
Gas strainer (standard)	Installed in the housing upstream (23 mesh)
Proof of closure switch Factory mounted and calibrated	SPDT switch with indication lamps: AC max. 10 A resistive @ 120 VAC AC max. 8 A inductive @ 120 VAC
Valve proving system	Requires VPS 504; mounts directly to either side of SV-(DLE) 1010 - 1020 only

SV 10../614



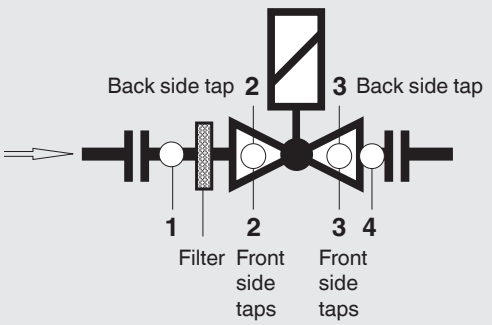
⚠ When an accessory is added to the SV, it may not be possible to mount other devices.

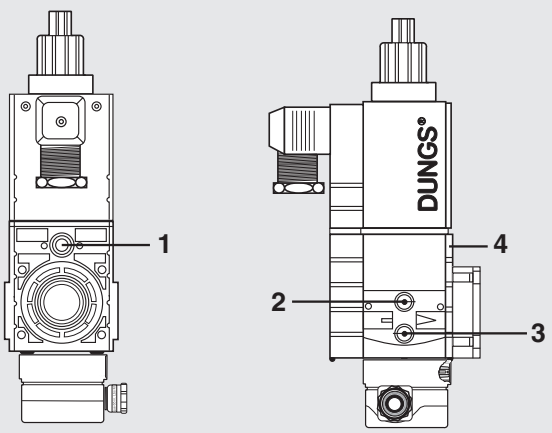
Test Ports

G1/8 ISO 228 test ports available on both sides of the valve. Each side has one test port upstream (2), one downstream (3) of the valve seat. One Inlet (1) and outlet (4) of valve body. The SV 1010, 1012, 1015, and 1020 have one outlet (5) on valve flange. The G 1/8 test nipple (# 219008) can be screwed into any of the test ports.

⚠ The position of the side taps #2 and #3 on the SV 1005/1007 are not the same as on the SV 1010-1020 valves.

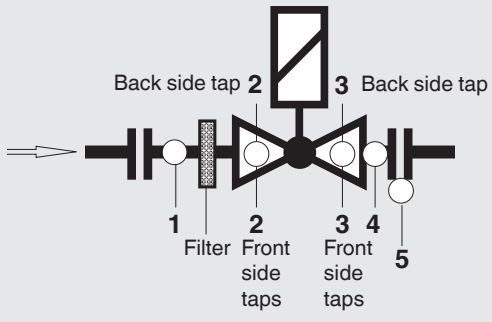
SV-(DLE): 1005, 1007

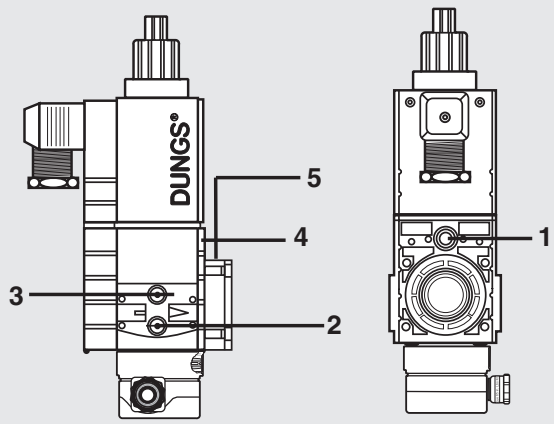




SV-(DLE): 1010, 1012

SV-(DLE): 1015, 1020



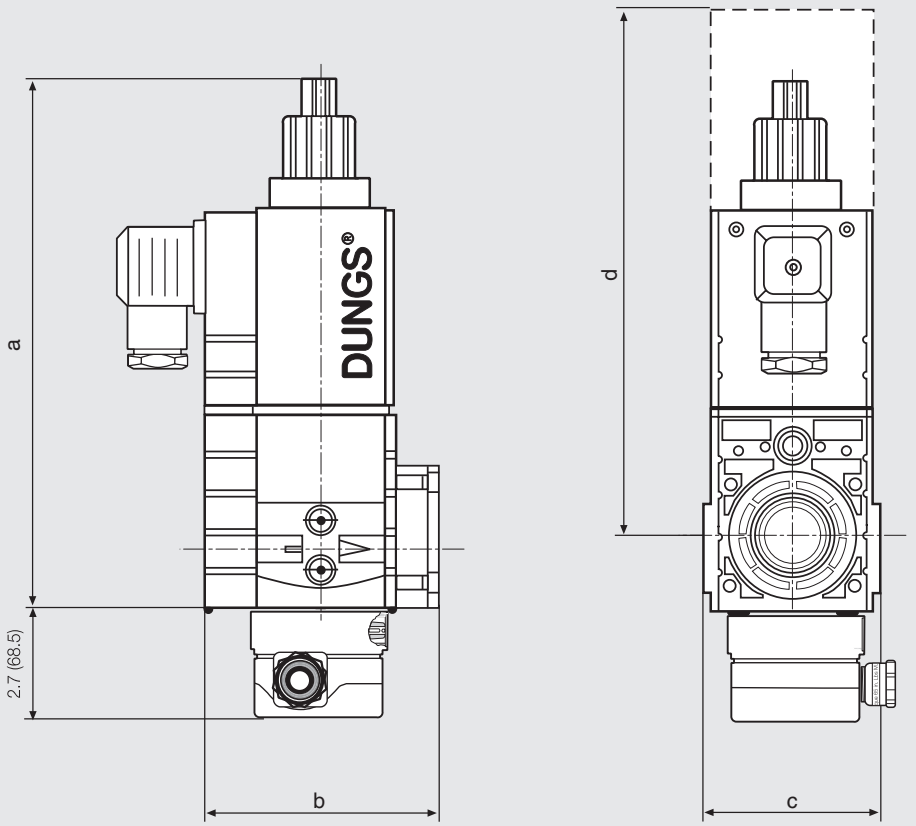


Feature	SV Model			SV-DLE Model		
	1005/1007	1010/1012	1015/1020	1005/1007	1010/1012	1015/1020
Main flow adjustment	-	-	-	X	X	X
Slow opening	-	-	-	X	X	X
Strainer	X	X	X	X	X	X
Ports for field mountable gas pressure switch	X	X	X	X	X	X
GAO, GMH, GML..A2 valve inlet (Port 1)	- 3	X	X	- 3	X	X
GAO, GMH, GML..A2 valve outlet (Port 4)	- 3	(X)	(X)	- 3	(X)	(X)
GAO, GMH, GML..A2 inlet flange (Optional Flange)	-	X	X	-	X	X
GAO, GMH, GML..A2 outlet flange (Port 5)	-	X	X	-	X	X
GAO, GMH, GML..A2 both sides upstream (port 2)	X	X	X	X	X	X
GAO, GMH, GML..A2 both sides downstream (port 3)	-	X	X	-	X	X
Flange installed on outlet	X	X	X	X	X	X
Flange installed on inlet	(X)	(X)	(X)	(X)	(X)	(X)
Ignition gas flange NPT 1/2 (225043)	-	(X)	(X)	-	(X)	(X)
1/4" NPT Adapter both sides upstream (225047)	(X)	(X)	(X)	(X)	(X)	(X)
1/4" NPT Adapter both sides downstream (225047)	-	(X)	(X)	-	(X)	(X)
Valve proving system VPS 504 S06 (221073)	1	(X)	(X)	1	(X)	(X)
G 1/8 Test Nipple (219008)	2	2	2	2	2	2

-	Not avaliable / Not possible
X	Standard
(X)	Optional
1	Alternative valve proving system: VDK 200 (216-352)
2	Fits into any test port
3	No adapter exists to mount a switch at this port

Flow (CFH) of natural gas, s.g. 0.65 at 60 °F with 1 in. W.C. pressure drop	
SV 1005/614	335
SV 1007/614	450
SV 1010/614	900
SV 1012/614	1300
SV 1015/614	1950
SV 1020/614	2250

Dimensions SV..., SV-DLE inch (mm)



d = Space required for replacing solenoid

Type	Order No. 120 VAC @ 50-60 Hz	Pressure$_{max.}$ [PSI]	Size	Dimensions [inch] Dimensions [mm]				Rating [VA]	Weight [lbs] [kg]
				a	**b**	**c**	**d**		
SV 1005/614	267076	10	NPT 1/2	**6.0** 152	**3.8** 96	**2.4** 62	**8.5** 215	20	**3.3** 1.5
SV 1007/614	267073	10	NPT 3/4	**6.0** 152	**3.8** 96	**2.4** 62	**8.5** 215	20	**3.3** 1.5
SV 1010/614	267074	10	NPT 1	**9.2** 233	**4.6** 116	**3.4** 87	**10.9** 277	25	**9.3** 4.2
SV 1012/614	267078	10	NPT 1 1/4	**9.2** 233	**4.6** 116	**3.4** 87	**10.9** 277	25	**9.3** 4.2
SV 1015/614	267071	10	NPT 1 1/2	**12.0** 305	**6.5** 165	**4.5** 115	**14.6** 370	45	**16.1** 7.3
SV 1020/614	267080	10	NPT 2	**12.0** 305	**6.5** 165	**4.5** 115	**14.6** 370	45	**16.1** 7.3
SV-DLE 1005/614	267077	10	NPT 1/2	**8.1** 205	**3.8** 96	**2.4** 62	**8.5** 215	20	**3.5** 1.6
SV-DLE 1007/614	267072	10	NPT 3/4	**8.1** 205	**3.8** 96	**2.4** 62	**8.5** 215	20	**3.5** 1.6
SV-DLE 1010/614	267075	10	NPT 1	**10.5** 266	**4.6** 116	**3.4** 87	**10.9** 277	25	**9.3** 4.2
SV-DLE 1012/614	267079	10	NPT 1 1/4	**10.5** 266	**4.6** 116	**3.4** 87	**10.9** 277	25	**9.3** 4.2
SV-DLE 1015/614	267070	10	NPT 1 1/2	**12.0** 305	**6.5** 165	**4.6** 116	**14.6** 370	45	**16.1** 7.3
SV-DLE 1020/614	267081	10	NPT 2	**12.0** 305	**6.5** 165	**4.6** 116	**14.6** 370	45	**16.1** 7.3

Valve Accessories			
***Flange kit**	**Size**	**NPT Part #**	**Rp Part #**
SV 1005 / 1007	1/2	242650	242220
SV 1005 / 1007	3/4	242651	242221
SV 1010 / 1012	1/2	242653	242223
SV 1010 / 1012	3/4	242654	242224
SV 1010 / 1012	1	242655	242225
SV 1010 / 1012	1 1/4	242656	242226
SV 1010 / 1012	1 1/2	245563	243817
SV 1015 / 1020	1	242657	242227
SV 1015 / 1020	1 1/4	242658	242228
SV 1015 / 1020	1 1/2	242659	242229
SV 1015 / 1020	2	242660	242230
*Mounting kit includes 1 flange, 4 bolts and 1 O-ring.			

⚠ The SV 1010, 1012, 1015 and 1020 flanges are the same as the DMV flanges, however the mounting screws used for the SV and DMV are different. DO NOT interchange flange mounting screws.

Additional Accessories

VPS 504
Valve proving system approved by some authorities having jurisdiction in lieu of vent valve and "proof of closure". (NFPA 86) NEMA Type 12 only.

GAO/GMH/GML A2 pressure switch
DMK butterfly control valve
Mounts directly downstream of DMV to modulate gas flow. Requires DMA actuator.

DMA actuator.
Mounts directly to DMK to modulate gas flow. 12 and 30 second actuators available. NEMA Type 4 cover avaliable.

Adapters
- 1/4" NPT adapter (225047)
- 1/2" NPT Pilot gas adapter; Check flow requirements. (225043)
- G 1/8" Test nipple (219008)

SV supplied with downstream flange and mounting kit as standard.

Flange kit is only needed if a flange is desired on the inlet of the valve.

Pressure drop for other gases
To determine the pressure drop when using a gas other than natural gas, use the flow formula below and f value located in the table below to determine the "corrected" flow rate in CFH through the valve for the other gas used. For example, when using propane, divide the volume (CFH) of propane required for the application by the calculated value f (f = 0.66 for propane). Use this "corrected" flow rate and the flow curve on the next page to determine pressure drop for propane.

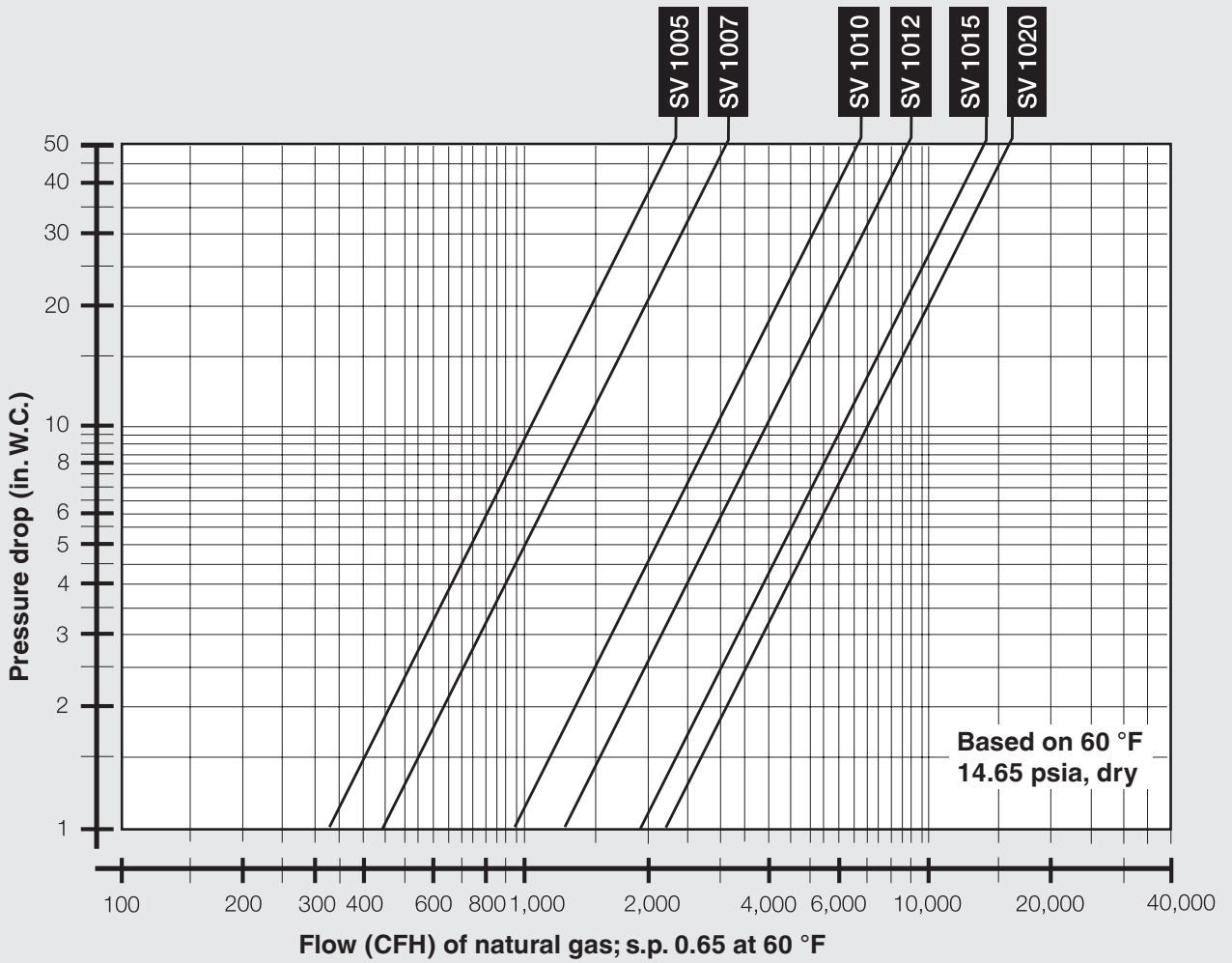
Determining equivalent flow through valves using another gas

$$\dot{V}_{\text{gas used}} = \dot{V}_{\text{Natural gas}} \times f$$

$$f = \sqrt{\frac{\text{Density of Natural gas}}{\text{Density of gas used}}}$$

Type of gas	Density [kg/m³]	s.g.	f
Natural gas	0.81	0.65	1.00
Butane	2.39	1.95	0.58
Propane	1.86	1.50	0.66
Air	1.24	1.00	0.80

Flow curve


SV 1005
SV 1007
SV 1010
SV 1012
SV 1015
SV 1020
50
40
30
20
10
8
6
5
4
3
2
1
Pressure drop (in. W.C.)
Based on 60 °F
14.65 psia, dry
100
200
300
400
600
800
1,000
2,000
4,000
6,000
10,000
20,000
40,000
Flow (CFH) of natural gas; s.p. 0.65 at 60 °F

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Combustion Controls