



- // For continuous duty intermittent high/low or on/off control of combustion airflow
- // Individual high flow adjustment
- // Designed for continuous on-off cycling
- // Life expectancy of 2 million cycles
- // DC system prevents overheating of solenoid coil
- // Damper for speed control
- // Closed position indication and low flow bypass available
- // Low maintenance
- // CE certified models available

Application

VR solenoid air valves are designed for on/off or high/low control of air flow for combustion systems. Their continuous duty capability makes them especially well suited to withstand the continuous cycling of frequency firing combustion control systems.

Specifications

Operating Limits

Ambient temperature range:	-4° F to 140° F (-20° C to 60° C) UL up to 104° F (40° C)
Maximum inlet pressure:	2 psig (130 mbar)
Maximum static line pressure :	30 psig (2.1 bar) (with valve closed)
Opening time:	VR..N fast opening – less than 0.5 seconds VR..R slow opening – approximately 3 seconds
Closing time:	VR..N fast closing – less than 1 second VR..R slow closing – approximately 3 seconds
Operating life:	2 million cycles
Switching frequency:	10 times/minute for fully stable damping of the valve, VR 25 is available only with damping unit.
Adjustable high flow rate:	Standard
Available pipe sizes in inches:	1" to 2½" NPT

Electrical Data

Supply voltage:	120 Vac; +10/-15%; 50/60 Hz
Duty cycle:	Continuous
Conduit connection:	½" NPT
Terminal:	Maximum 14 gauge wire size
Type of enclosure:	NEMA 3 (IP 54)
Solenoid coil insulation:	Class F
Solenoid coil power factor:	$\cos \phi = 1$
Power consumption at 120 Vac:	VR 25: 31 VA or watts VR 40 and VR 50: 64 VA or watts VR 65: 74 VA or watts

A full wave rectifier located in the terminal box converts incoming AC current to DC. Power consumption is the same on start-up and during continuous operation.

Materials of Construction

VR solenoid valves have pressure die-cast aluminum bodies and solenoid housings. O-ring seals and the valve disc facings are made of nitrile rubber. ¼" NPT pressure taps are provided on both sides of the valve inlet and outlet. Internal flow-limiting orifices are galvanized steel.

Electrical terminal boxes have two ½" NPT connections and two grounding screws.

Terminal will accept a maximum wire gauge of #14.

Special Features

Adjustable Maximum Flow from 10% to 100% of rated flow capacity – field adjustable.

Selectable Minimum Flow using optional fixed low flow bypass orifice.

Closed Position Indicator Switch (Option CPS) factory-adjusted and tested SPDT switch which can be used as a system interlock or to activate indicator lights.

120 Vac 50/60 Hz, 2 A maximum load.

Closed Position Indicator Switch (Option CPS)

VR solenoid valves are available with a closed position indicator switch. A factory adjusted and tested SPDT switch enclosed in a housing mounted on the bottom of the valve body indicates valve closed position. Switching capacity of the switch is 5 Amps maximum at 120 Vac. The enclosure has one 1/2" NPT conduit connection and two terminals for a maximum wire gauge of #14.



Sizing

Maximum Flow Capacity, SCFH (m³/h) at 40" WC (100 mbar) pressure drop through valve

Type	VR 25		VR 40		VR 50		VR 65	
	SCFH	m ³ /h	SCFH	m ³ /h	SCFH	m ³ /h	SCFH	m ³ /h
Air Flow	3,500	100	8,400	240	10,200	290	20,000	570

Bypass Orifice Flow Capacity, SCFH (m³/h) at 40 "WC (100 mbar) pressure drop through valve

Orifice Size inches (mm)	Bypass Air Flow			Orifice Size inches (mm)	Bypass Air Flow	
	SCFH	m ³ /h			SCFH	m ³ /h
0.12 (3)	80	2.30		0.44 (11)	1,100	31
0.2 (5)	230	6.50		0.52 (13)	1,600	45
0.28 (7)	430	12.2		0.6 (15)	2,100	59
0.36 (9)	740	21.0		0.68 (17)	2,600	74

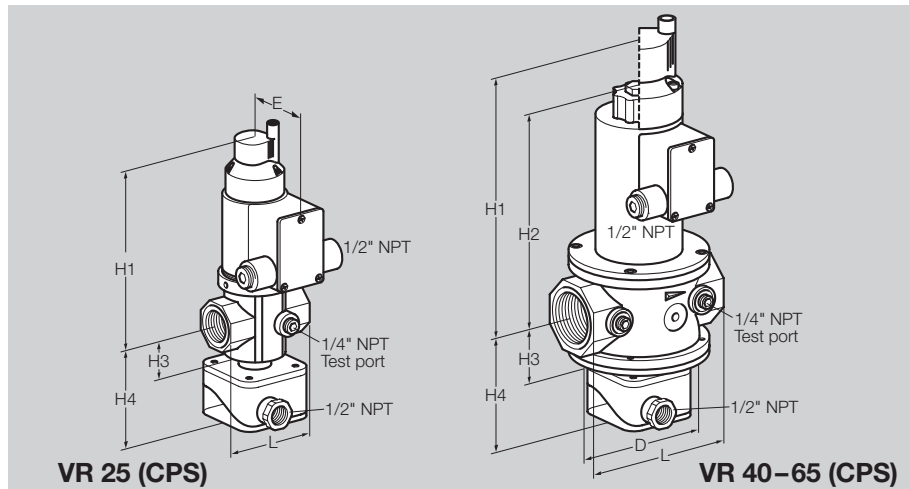
The above charts are accurate at sea level altitude, 1 psig (69 mbar), line pressure and 60° F (16° C).

Mass flows will decrease at higher temperatures, line pressures and altitudes.

To estimate flows at other pressure drops across the valve, multiply figures in the table by the following factors.

Pressure Drop, "WC	1	2	5	10	15	20	30
Flow Multiplication Factor	0.16	0.22	0.35	0.50	0.61	0.71	0.87

Dimensions and Weights



Type	Connection		Dimensions												
	NPT	DN	IN	L	Ø D		H1		H2		H3		H4		
			mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
VR 25	1	25	3.59	91	-	-	6.84	175	-	-	1.31	33	3.90	99	
VR 40	1½	40	5.90	150	5.06	129	11	280	8.35	212	2	51	4.72	120	
VR 50	2	50	7.09	180	6.16	157	11.47	291	8.78	223	2.44	62	5.16	131	
VR 65	2½	65	8.59	218	7.22	184	11.94	303	9.25	235	2.91	74	5.63	143	

Type	Max. operating pressure		V air [SCFH] with Δp = 1 "WC	P 120 Vac VA/W	Weight	
	psig	mbar			LBS	kg
VR 25	2	130	560	31/31	4.8	2.2
VR 40	2	130	1344	64/64	14.1	6.4
VR 50	2	130	1632	64/64	15.2	6.9
VR 65	2	130	3200	74/74	21.4	9.7

Order Information

Solenoid Valves for Air VR

VR	solenoid valve for air
1" to 2 ½" (DN 25 to 65)	nominal diameter
T	T-product
N	NPT-internal thread
01	p _e max. 2 psig (130 mbar)
N	fast opening, fast closing
R	slow opening, slow closing
Q	120 Vac, 50/60 Hz
9	metal terminal connection box
3	screw plug at the inlet and outlet
D	maximum flow adjustment
CPS	closed position switch

Warning:

Situations dangerous to personnel and property can result from the misapplication and incorrect operation of combustion equipment. Kromschroder advises compliance with the National Fire Protection Association standards that apply for related equipment and Insurance Underwriters recommendation, and care of operation.

We reserve the right to make technical changes designed to improve our products without prior notice. For current product information, visit our website at www.kromschroder.com.