

Match your flow control needs to the general specifications listed here. If you find your requirements fall within our product guidelines there may be a "Lake" solenoid valve which can be made to suit your application. For more detailed information for your specific use, please call, or send your requirements to the address below.

OPERATING SPECIFICATIONS	
4500 SERIES normally closed solenoid valve	
ELECTRICAL	operating voltages any voltage available up to 575 volts DC or peak AC
	current ① average .86 amps
	wattage ② Max. 24 watts continuous duty
	insulation ③ coil to case breakdown voltage is greater than 600 volts
PRESSURE	operating pressure 3000 psi maximum
	differential pressure 1000 psi maximum
FLOW	orifice size 1/16 3/32 1/8 5/32 3/16
	Cv factor life .09 .19 .31 .35 .38
CYCLIC	expectancy ④ 500,000 cycles
	cyclic rate ④ 1800 cycles per minute max.
	response ④ .01 sec. to open .02 sec. to close
ENVIRONMENT	shock load 15 G's
	temperature rise 25°C (45°F) temp. rise at 25°C (77°F) ambient
	coil construction Bubble tight epoxy encapsulated coil
operating temperature -196°C(-320°F) to 177°C(350°F)	
MOUNTING REQUIREMENTS	
MECHANICAL	type of mount 1/4" NPT inlet, 1/8" NPT outlet many options available
	weight 10 to 12 oz.
ELECTRICAL	operating position operates fully in any position
	leads ⑤ length cut to customer specs. insulation and gauge options available
PHYSICAL	terminations made to customer specs
	valve dimensions See fig. A on other side of this sheet
CONSTRUCTION CONSIDERATIONS	
MISC.	lead configuration single lead with case grounded or two lead isolated from case
tip	a wide variety of tip materials are available depending upon use
material	available in stainless steel or Ledloy
valve body and internal parts	flat black enamel with label
finish	

Cv FLOW FORMULAE

Use the following formulas to determine the flow rate of any given orifice at any specific pressure. The Cv factor for each orifice size is listed in the 'specifications' section. Use this Cv value and other known data to replace the symbols as indicated in each of the following equations.

F - Rate of flow in USGPM or SCFH
 Cv - Flow rating of valve
 S - Specific gravity (relative to air or water)
 T - Absolute temperature in degrees F. (460° + F)
 P1 - Inlet pressure, psia (PSIG + 15)
 P2 - Downstream pressure, psia
 ΔP - Pressure drop across valve (open position), psig

LIQUID FLOW

$$F = C_v \sqrt{\frac{\Delta P}{S}}$$

GAS FLOW

If the downstream pressure (P2) is equal to or less than 53% of the inlet pressure (P1) use the following formula:

$$F = 61 C_v \sqrt{\frac{P_1}{S}} \times \sqrt{\frac{22.8}{T}}$$

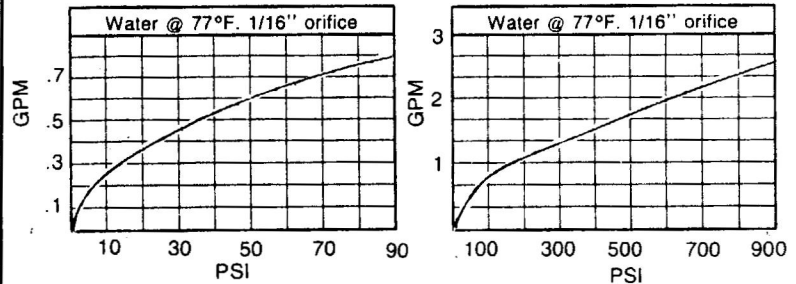
If the downstream pressure (P2) is greater than 53% of the inlet pressure (P1) use the following formula:

$$F = 61 C_v \sqrt{\frac{P_2 \Delta P}{S}} \times \sqrt{\frac{22.8}{T}}$$

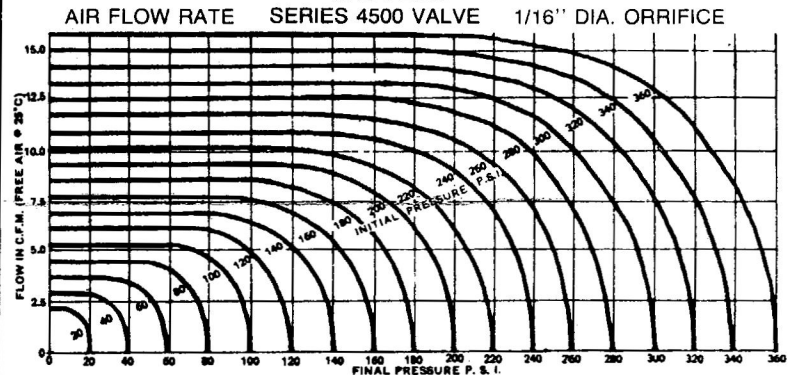
FLOW CHARTS

Flow curves shown are measured for water and air at room temperature (25°C). Both have a specific gravity of 1.00. To correct for other mediums divide the flow rate by the square root of the specific gravity of the media.

LIQUID FLOW



GAS FLOW



To convert results from above fluid flow graphs to orifice sizes other than 1/16", multiply above readings by the factors listed here under each orifice size.

3/32"	1/8"	5/32"	3/16"
2.11	3.44	3.88	4.22

- .04 to 4 amps for continuous duty valves. May be higher in some intermittent duty ratings.
- Above 24 watts begins intermittent duty ranges.
- All "Lake" solenoid valves are tested for breakdown at 600v.
- Results will vary depending upon pressure, orifice and media uses.
- Conduit and military connections to case are available.