3 Port Air Operated Valve
Series VPA3145/3165/3185

How to Order

VPA3 1 4 5 □ – 04 – □

VPA
Air operated valve

Number of pilot

1	Single

Body size

4	1/2
6	1
8	1 1/2

Body type

5	Body ported

Valve option

Nil	For general purpose
V	For vacuum and low pressure

Port size (IN, OUT port)

Symbol	Port size Rc size	VPA3145	VPA3165	VPA3185
03	3/8 (10A)	●	—	—
04	1/2 (15A)	●	—	—
06	3/4 (20A)	●	●	—
10	1 (25A)	—	●	—
12	1 1/4 (32A)	—	●	●
14	1 1/2 (40A)	—	—	●
20	2 (50A)	—	—	●

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

VPA3165-06 VPA3145-03

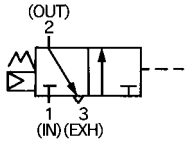
Specifications

Fluid	Air	
Type of actuation	N.C. only (N.O. only for vacuum)	
Operating pressure range	For vacuum and low pressure	For general purpose
	–101.2 kPa to 0.2 MPa	0.2 to 0.8 MPa
Pilot pressure range	Refer to the graph of pilot pressure.	
Ambient and fluid temperature (˚C)	0 to 60 (No freezing)	
Lubrication	Required (Turbine oil, Class 1 ISO VG32 equivalent)	
Mounting orientation	Free	
Impact resistance/Vibration resistance (m/s^2) Note)	150/50	

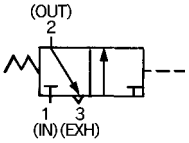
Note) Impact resistance: No malfunction from test using drop impact tester, to axis and right angle directions of main valve, each one time when pilot signal ON and OFF. (Value in the initial stage)
Vibration resistance: No malfunction from test with 45 to 2000 Hz one sweep, to axis and right angle direction of main valve, each one time when pilot signal ON and OFF. (Value in the initial stage)

JIS Symbol

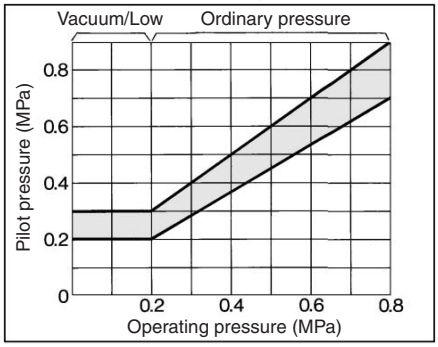
<Positive pressure>



<Vacuum pressure>



Pilot Pressure Range



⚠ Precautions

Be sure to read before handling. Refer to pages 5-11-2 to 6 for Safety Instruction and Solenoid Valve Precautions.

⚠ Caution

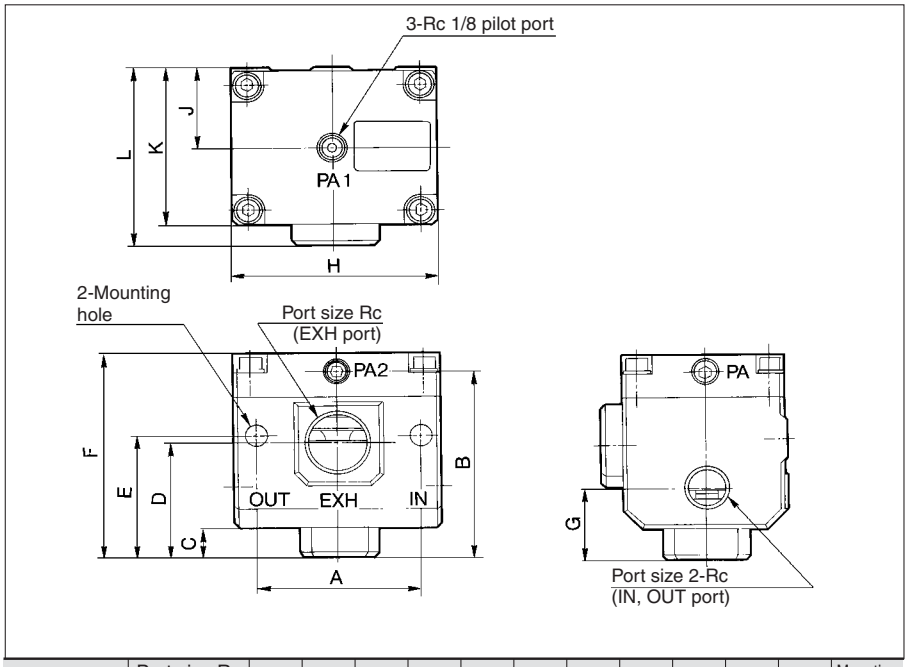
1. Lubrication
   Since this valve needs lubrication, use turbine oil Class 1 (ISO VG32). Refer to page 5-11-5 for the brand names of lubricants.
2. Refer to Best Pneumatics Vol. 4 for information about the pressure applied to piping and ports, quality of air and piping for vacuum applications.

Flow Characteristics/Weight

Valve model	Port size		Flow characteristics						Weight (kg)
			1 → 2 (IN → OUT)			2 → 3 (OUT → EXH)			
	1 (IN) , 2 (OUT)	3 (EXH)	C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv	
VPA3145	3/8	3/4	19	0.43	5.5	18	0.47	5.4	1.0
	1/2		23	0.32	6.2	42	0.39	10	
	3/4		28	0.36	7.6	26	0.35	7.0	

Valve model	Port size		Effective area (mm²)		Weight (kg)
	1 (IN), 2 (OUT)	3 (EXH)	1 → 2 (IN → OUT)	2 → 3 (OUT → EXH)	
VPA3165	3/4	1 1/4	230	280	1.5
	1		280	310	
	1 1/4		310	330	
VPA3185	1 1/4	2	570	650	2.3
	1 1/2		650	670	
	2		650	670	

Dimensions



Model	Port size Rc		A	B	C	D	E	F	G	H	J	K	L	Mounting hole
	IN, OUT	EXH												
VPA3145	3/8	3/4	71	85	14	52	55	93	32	87.4	36	71	80	ø8.5
	1/2													
	3/4													
VPA3165	3/4	1 1/4	82.6	110	17	68	75	118	45	113	36	71	95	ø8.5
	1													
	1 1/4													
VPA3185	1 1/4	2	118	132	14	80	95	140	52	140	41	81	105	ø13
	1 1/2													
	2													