Soft Start-up Valve
AV4000/5000

How to Order

AV **40** **00** — **F** **04** — **5** **D** **Z** **[ ]** **-X223**

Soft start-up valve

Body size

40	1/2
50	3/4, 1

Thread type

F	G

Port size

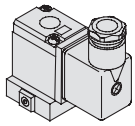
04	1/2 (AV4000 only)
06	3/4 (AV5000 only)
10	1 (AV5000 only)

Coil rated voltage

5	24 VDC

Electrical entry

D: Type D
DIN terminal with M12

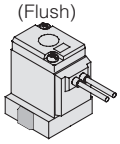


Light/Surge voltage suppressor

Z	With light/surge voltage suppressor

Manual override

Nil: Non-locking push type (Flush)

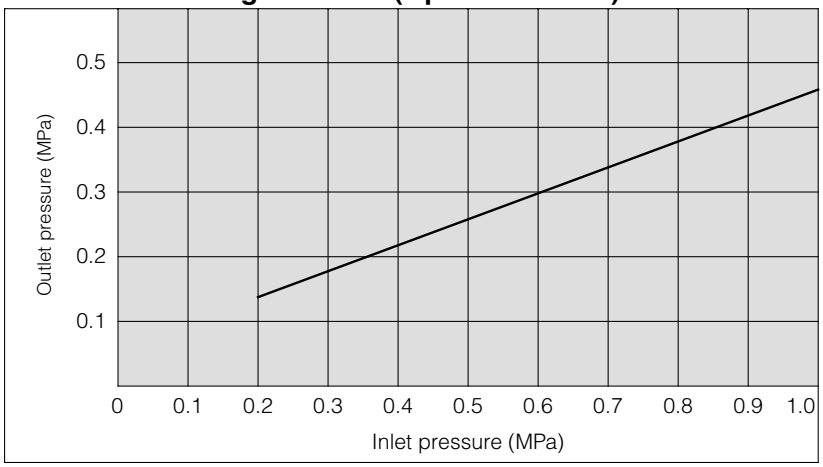


Specifications

Model		AV4000	AV5000	
Port size(In)		1/2	3/4	1
Proof pressure		1.5 MPa		
Operating pressure range		0.2 to 1 MPa		
Pressure gauge port size		1/8		
Ambient and fluid temperature		0 to 60°C (1)		
Effective area (mm^2)	1(P) → 2(A)	61	113	122
	2(A) → 3(R)	76	132	141
Weight (kg)		0.74	1.60	1.54
Electrical specifications	Rated coil voltage	24 VDC		
	Allowable voltage fluctuation	−15 to +10% of rated voltage		
	Coil insulation type	Equivalent to B type (130°C)		
	Current consumption DC	1.8 W		
	Electrical entry	Type D DIN terminal - M12		
	Option specifications	Indicator light/Surge voltage suppressor		
Pilot valve manual override		Non-locking push type (Flush), Locking type (Tool required), Locking type (Lever)		

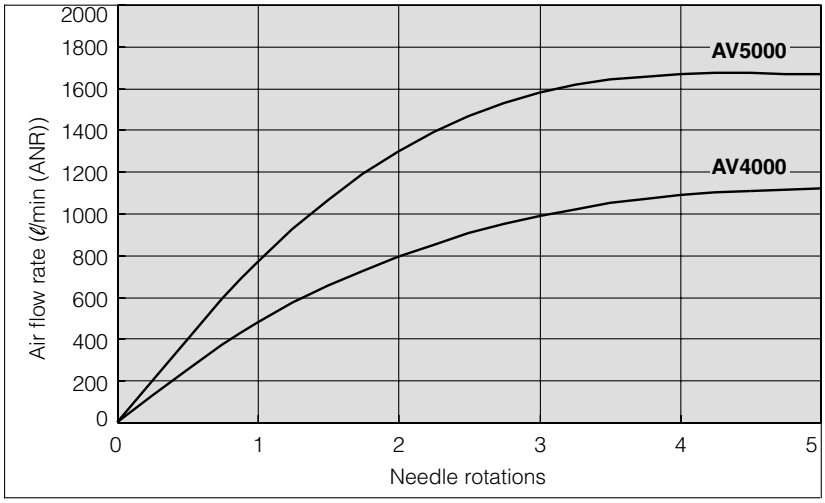
Note 1) Use dry air when operating at a low temperature.

Piston B Switching Pressure (Open → Closed)

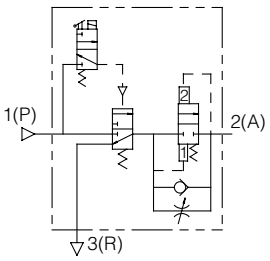


Needle Valve Flow Characteristics

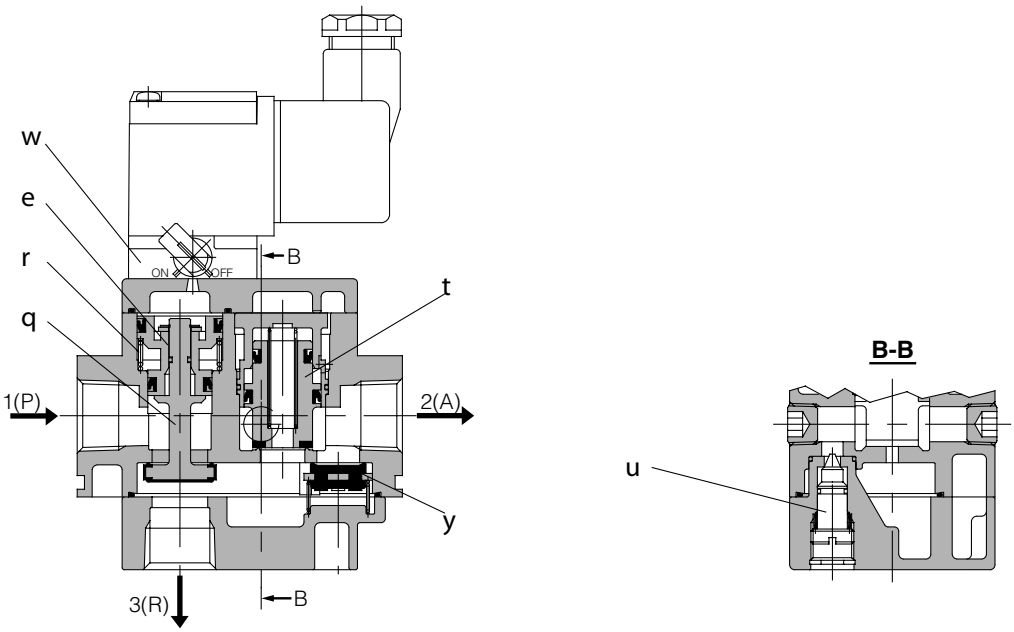
Inlet pressure 0.5 MPa

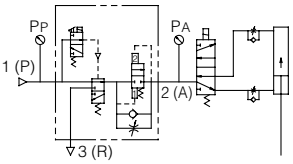
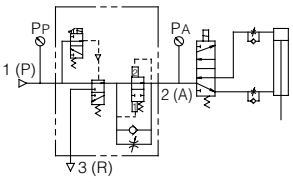
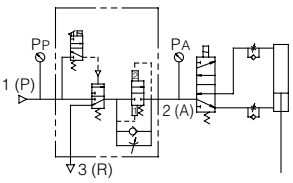


Symbol



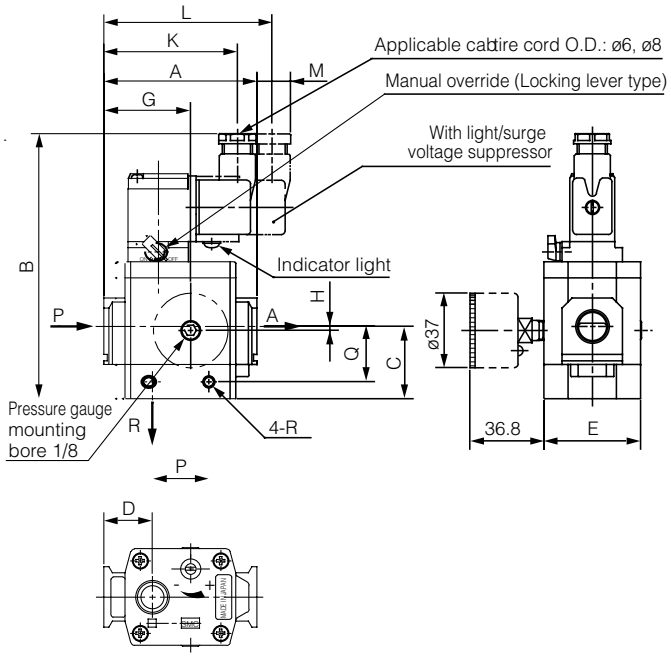
Working Principle



Working condition	Pilot valve	Pressure conditions	Working description	Pressure time chart (Meter-out control) example	Cylinder drive circuit (Meter-out control) example
Low speed supply	ON	1/2 P_P > P_A	When pilot valve **w** is turned ON by energization or manual override, the pilot air pushes piston A **e** and main valve **q** downwardand opens main valve **q** while R port closes simultaneously. The air from P portmoves to needle valve **u**, where its flow is adjusted, and flows to A port. The meter-in control of needle valve **u** slowly moves the cylinder from **A** to **B**.	Initial Operation Return Stroke Pressure stroke P_P Cylinder movement with fixed orifice Ⓑ Ⓓ P_A Ⓒ P_R (Atmospheric pressure) Ⓐ Time	
High speed supply		1/2 P_P ≤ P_A	When 1/2 P_P ≤ P_A after the cylinder reaches B, piston B **t** fully opens and P_A increases rapidly as shown from **C** to Dand becomes the same pressure as P_P.		
Normal operation		1/2 P_P ≅ P_A	Since piston B **t** holds the fully open condition, during normal operation the cylinder's speed will be controlled by the usual meter-out control.		
Quick exhaust	OFF	—	When pilot valve **w** is turned OFF, spring **r** pushes piston A **e** and **q** upward and opens R port while shutting off the air supply from P port. The pressure difference generated at this time lets the check valve open **y** and the residual pressure on the A port side is quickly exhausted from R port.		

Dimensions

DIN terminal: AV□00-□-□D, DZ



Model	Port size	A	B	C	D	E	G	H	I	K	L	M	N	P	Q	R
AV4000-□04-□DZ□	1/2	98	147	47	32	52	57	3	—	80.5 —	— 97.5	— 6	—	42	37	M6 x 1 Depth 6
AV5000-□$^{06}_{10}$-□DZ□	3/4, 1	128	175	59	39	74	77	0	—	90 —	— 107	— —	—	50	46	M6 x 1 Depth 7.5