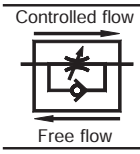


FLOW CONTROL VALVE

Series GR2

Cat No GR2 - 01 - 03

FLOW CONTROL VALVE - Inline type

Features

- ❑ Fine regulation of air flow
- ❑ Elegant design and finish

Function

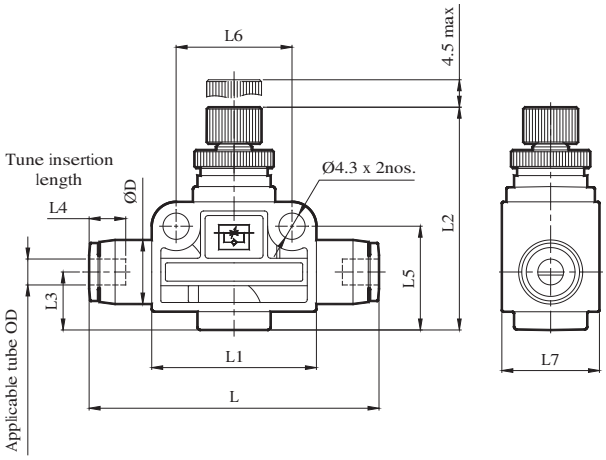
These valves allow controlled flow of air in one direction and free flow in the other direction.

Application

These valves are used to control the speed of the pneumatic cylinder.

Technical Specifications

Type	Reversing type
Model	GR011
Medium	Compressed air - Dry / Lubricated
Max. Operating pressure	10 bar
No. of needle rotations	8
Ambient Temperature	5° - 60° C
Materials of construction	Brass, Acetal, Nitrile
Applicable tubes	Nylon, Polyurethane



Sl. No	Ordering No.	Applicable Tube OD	L	L1	L2	L3	L4	L5	L6	L7	ØD	Free Flow Lts/min. @	Controlled Flow Lts/min. @
1	GR0110404	4	49.5	27	37.5	9.5	14.5	17	19	16	10.5	50	50
2	GR0110606	6	55	32	43.5	11	15.5	19.5	24	19	12.5	225	200
3	GR0110808	8	58	32	43.5	11	17.5	20.5	24	19	15	450	400
4	GR0111010	10	68.5	33	48	12	20	23.5	25	22	18.5	800	550
5	GR0111212	12	68.5	33	48	12	20.5	24.5	25	22	21	950	900

@ Inlet pressure 6 bar, and pressure drop 1 bar

How to Order

While ordering Flow control valve, mention the ordering number given in the corresponding tables.

Subject to change

Speed Controller: Standard Type
In-line Type
AS Series

RoHS

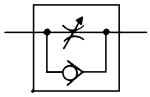
Compact size saves space.

Speed may be accurately controlled even at low speeds.

Constant speed easily set.

Retainer prevents an accidental loss of needle.

Symbol



Model/Flow Rate and Effective Area

Model	Port size	Free flow			Controlled flow			Weight (g)
		Flow rate (L/min (ANR))	Sonic conductance $dm^3/(s \cdot bar)$	Critical pressure ratio	Flow rate (L/min (ANR))	Sonic conductance $dm^3/(s \cdot bar)$	Critical pressure ratio	
AS1000-M3	M3 x 0.5	20	0.06	0.15	20	0.06	0.2	4.7
AS1000-M5	M5 x 0.8	90	0.25		80	0.22		33
AS2000-01	1/8	340	0.94	0.35	250	0.7		90
AS2000-02	1/4	340	0.94		250	0.7		115
AS3000-02	1/4	810	2.3		810	2.3		130
AS3000-03	3/8	810	2.3		810	2.3		124
AS4000-02	1/4	1,670	4.6		1,670	4.6		221
AS4000-03	3/8	1,670	4.6		1,670	4.6		214
AS4000-04	1/2	1,670	4.6		1,670	4.6		205
AS5000-02	1/4	2,840	7.9		2,840	7.9		242
AS5000-03	3/8	4,270	11.9		4,270	11.9		233
AS5000-04	1/2	4,270	11.9		4,270	11.9		224

Note) Flow rate values are measured at 0.5 Mpa and 20°C.

Specifications

Fluid	Air
Proof pressure (Note)	1.5 MPa (1.05 MPa)
Max. operating pressure (Note)	1 MPa (0.7 MPa)
Min. operating pressure (Note)	0.05 MPa (0.1 MPa)
Ambient and fluid temperature	–5 to 60°C (No freezing)

Note) ( ): Values for AS1000.

Accessory

Description	Part no.	Applicable model
Nipple	M-5N	AS1000-M5

Note) AS1000 with nipple: AS1000-M5-N

⚠Caution

Be sure to read this before handling the products.
Refer to back page 50 for Safety Instructions and pages 543 to 546 for Flow Control Equipment Precautions.

How to Order

AS [1] 000 – [ ] [M5] – [ ] – [ ]

Body size

1	M3, M5 standard
2	1/8, 1/4 standard
3	3/8 standard
4	1/2 standard
5	1/2 standard

Thread type

Nil	Metric thread (M3, M5)
	Rc
N	NPT
F	G

Bore size

Bore size		Applicable series
M3	M3 x 0.5	AS1000
M5	M5 x 0.8	AS1000
01	1/8	AS2000
02	1/4	AS2000, 3000, 4000, 5000
03	3/8	AS3000, 4000, 5000
04	1/2	AS4000, 5000

Lock nut option

Nil	Hexagon lock nut
J (3)	Round lock nut

Note 3) Only for AS1000

Option

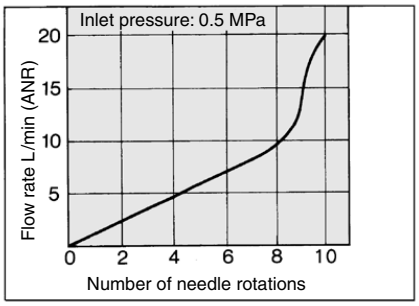
Nil	Standard (–5 to 60°C)
H (1)	High temperature (–5 to 80°C)
L (2)	Low temperature (–30 to 60°C)
N (3)	With nipple

Note 1) AS5000 is available as special. AS1000 is not applicable.
Note 2) AS1000, AS2000 are not applicable.
Note 3) Only for AS1000-M5

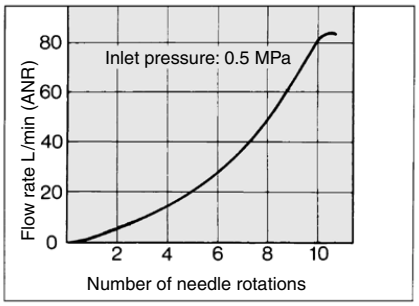
Needle Valve/Flow Rate Characteristics

Note) The flow rate characteristics are representative values.

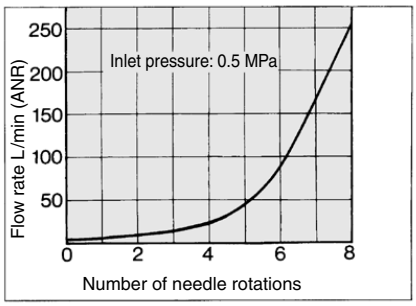
AS1000-M3



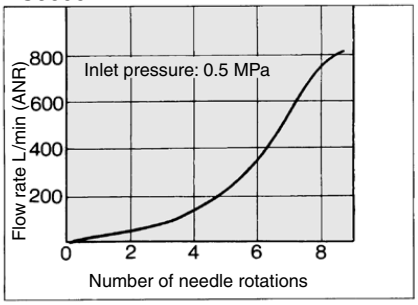
AS1000-M5



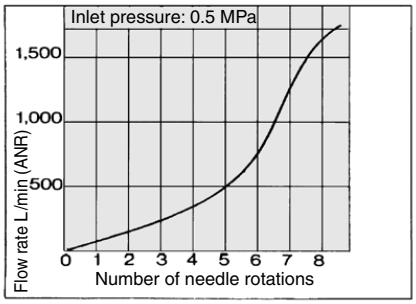
AS2000



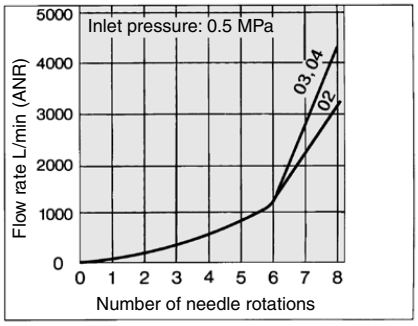
AS3000



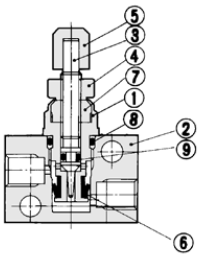
AS4000



AS5000



Construction: AS1000-M3

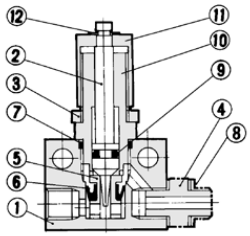


Component Parts

No.	Description	Material	Note
1	**Body B**	Brass	Electroless nickel plated
2	**Body**	Brass	Electroless nickel plated
3	**Needle**	Brass	Electroless nickel plated
4	**Lock nut**	Steel Note)	Zinc chromated
5	**Handle**	Brass	Electroless nickel plated
6	**U seal**	HNBR	
7	**Needle guide**	Brass	Electroless nickel plated
8	**O-ring**	NBR	4.5 x 3 x 0.75
9	**O-ring**	NBR	2.2 x 0.8 x 0.7

Note) Option: The round lock nut is made of electroless nickel plated brass.

Construction: AS1000-M5



Component Parts

No.	Description	Material
1	**Body**	Zinc alloy
2	**Needle**	Stainless steel
3	**Lock nut**	Steel Note)
4	**Nipple**	Stainless steel

No.	Description	Material	Note
9	**O-ring**	NBR	
10	**Needle guide**	Brass	Electroless nickel plated
11	**Handle**	Brass	Electroless nickel plated
12	**E type snap ring**	Steel	

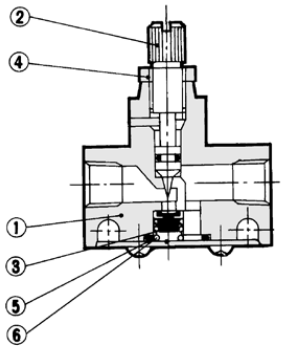
Note) Option: The round lock nut is made of electroless nickel plated brass.

Replacement Parts

No.	Description	Material	Part no.	Note
5	**Valve seat**	Brass	1429138	
6	**U seal**	HNBR	142964-3	
7	**O-ring**	NBR	KA00327	ø9 x ø7 x ø1
8	**Gasket**	NBR/Stainless steel	M-5G2	

Note) Construction drawing: AS1000-M5-N
In case of AS1000-M5, nipples and gaskets are not attached.

Construction: AS2000/3000



Component Parts

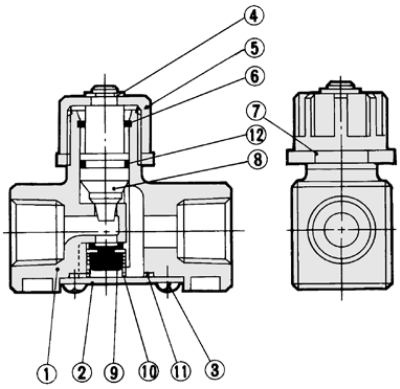
No.	Description	Parts no.	
		AS2000	**AS3000**
1	**Body**	Zinc alloy	Aluminum alloy
2	**Needle** *	Brass	Brass
4	**Lock nut** *	Brass	Carbon steel

* Electroless nickel plated

Replacement Parts

No.	Description	Material	Parts no.	
			AS2000	**AS3000**
3	**Valve**	NBR, Brass	143022	14283
5	**O-ring**	NBR	143021	14284
6	**Spring**	Stainless steel	143023	14282

Construction: AS4000



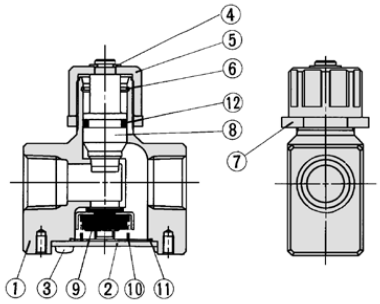
Component Parts

No.	Description	Material
1	**Body**	Aluminum alloy
2	**Cap**	Rolled steel
3	**Cross-recessed head cap screw**	Steel wire
4	**E type snap ring**	Stainless steel
5	**Handle**	Zinc alloy
6	**Ring**	Steel wire
7	**Lock nut**	Zinc alloy
8	**Needle**	Aluminum alloy
12	**O-ring**	NBR

Replacement Parts

No.	Description	Material	Parts no.
9	**Valve**	NBR, Brass	143145
10	**Spring**	Stainless steel	143146
11	**O-ring**	NBR	143147

Construction: AS5000



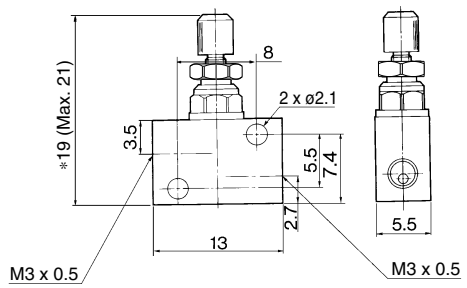
Component Parts

No.	Description	Material
1	**Body**	Aluminum alloy
2	**Cap**	Rolled steel
3	**Cross-recessed head cap screw**	Steel wire
4	**E type snap ring**	Stainless steel
5	**Handle**	Zinc alloy
6	**Ring**	Stainless steel
7	**Lock nut**	Zinc alloy
8	**Needle**	Aluminum alloy
12	**O-ring**	NBR

Replacement Parts

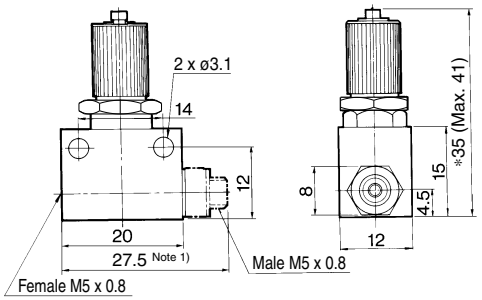
No.	Description	Material	Parts no.
9	**Valve**	NBR, Stainless steel	14143
10	**Spring**	Stainless steel	14144
11	**Seal**	NBR	14147

Dimensions: AS1000-M3



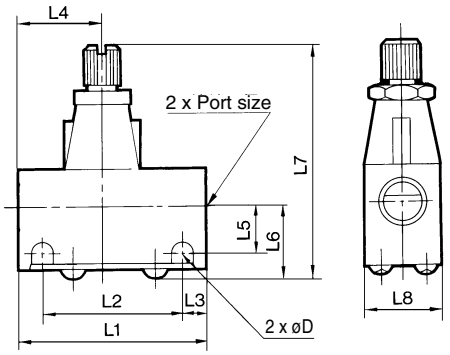
∗ Reference dimensions

Dimensions: AS1000-M5



∗ Reference dimensions
Note 1) Dimension for AS1000-M5-N

Dimensions: AS2000/3000

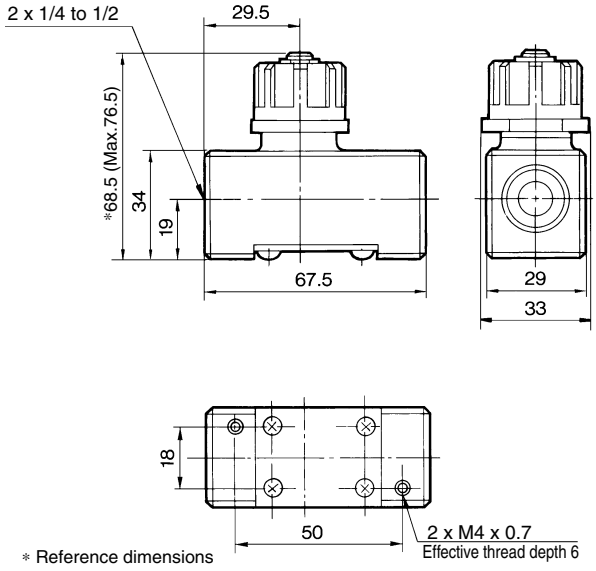


Dimensions

Model	Bore size	L1	L2	L3	L4	L5	L6	L7 (1) Max.	L7 (1) Min.	L8	D
AS2000-01	1/8	40	30	5	17	10	15.5	54.5	50	16	4.5
AS2000-02	1/4	40	30	5	23	11.5	17	56	51.5	20	4.5
AS3000-02, 03	1/4, 3/8	56	45.5	5.25	25	13.2	20.6	68	61	26	5.5

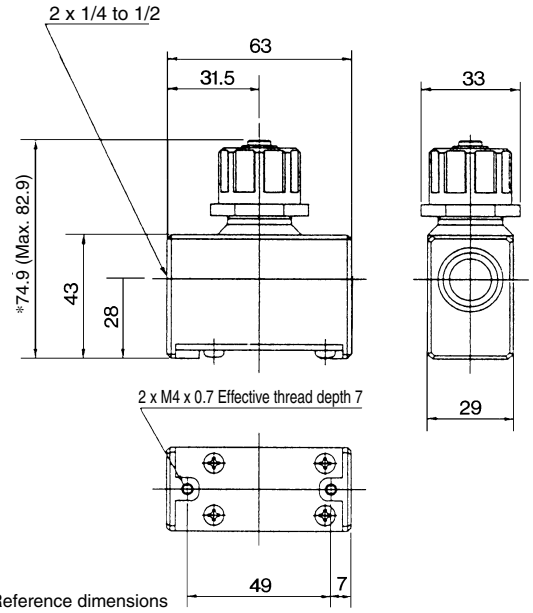
Note 1) L7: Reference dimensions

Dimensions: AS4000



∗ Reference dimensions

Dimensions: AS5000



∗ Reference dimensions