

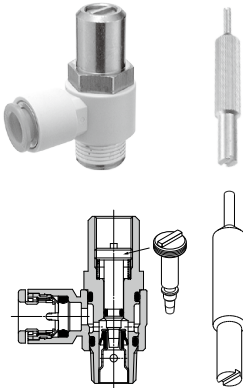
Tamper Proof Speed Controller with One-touch Fitting Elbow Type/Universal Type

AS□□□1F-T Series

RoHS

Able to adjust flow by a special tool

Prevention of an unnecessary manual operation



Special tool
Part number: AS-T-1

Elbow type



Universal type



Model

Elbow type	Universal type	Port size	Applicable tubing O.D.													
			Metric size						Inch size							
			3.2	4	6	8	10	12	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"	
AS12□1F-M5	AS13□1F-M5	M5 x 0.8	●	●	●	●	●	●								
AS22□1F-01	AS23□1F-01	R 1/8	●	●	●	●	●	●								
AS22□1F-02	AS23□1F-02	R 1/4		●	●	●	●	●								
AS32□1F-02	AS33□1F-02	R 1/4			●	●	●	●	●							
AS32□1F-03	AS33□1F-03	R 3/8			●	●	●	●	●							
AS42□1F-04	AS43□1F-04	R 1/2					●	●								
AS12□1F-U10/32	AS13□1F-U10/32	10-32 UNF								●	●	●	●			
AS22□1F-N01	AS23□1F-N01	NPT 1/8								●	●	●	●	●		
AS22□1F-N02	AS23□1F-N02	NPT 1/4									●	●	●	●	●	
AS32□1F-N02	AS33□1F-N02	NPT 1/4											●	●	●	
AS32□1F-N03	AS33□1F-N03	NPT 3/8												●	●	
AS42□1F-N04	AS43□1F-N04	NPT 1/2													●	

Note 1) □ = Elbow type only

Note 2) Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the resin body.

Specifications

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Applicable tubing material ⁽¹⁾	Nylon, Soft nylon, Polyurethane

Note 1) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used. (Refer to pages 678 and 682 for details.)

Note 2) Brass parts are all electroless nickel plated, provided as standard.

How to Order

AS 2 2 1 1 F - 01 - 06 S T - □

Body size

- 1 M5 standard
- 2 1/8, 1/4 standard
- 3 3/8 standard
- 4 1/2 standard

Type

- 2 Elbow
- 3 Universal

Control

- 0 Meter-out
- 1 Meter-in

With One-touch fitting

Port size

- M5 M5 x 0.8
- 01 R 1/8
- 02 R 1/4
- 03 R 3/8
- 04 R 1/2
- U10/32 10-32 UNF
- N01 NPT 1/8
- N02 NPT 1/4
- N03 NPT 3/8
- N04 NPT 1/2

Tamper proof

Speed Controller requires a special tool for flow adjustment. Order separately with part number, AS-T-1.

With seal

Note) In case that connecting port is either M5 or 10-32 UNF thread, it is not available with seal. With gasket is provided as standard.

Applicable tubing O.D. ^{Note)}

Metric size		Inch size	
23	ø3.2"	01	ø1/8"
04	ø4	03	ø5/32"
06	ø6	05	ø3/16"
08	ø8	07	ø1/4"
10	ø10	09	ø5/16"
12	ø12	11	ø3/8"
		13	ø1/2"

Made to Order

Refer to page 1107 for details.

Note) For applicable tubing O.D. selection, refer to the Model.

* Use ø1/8" tube.



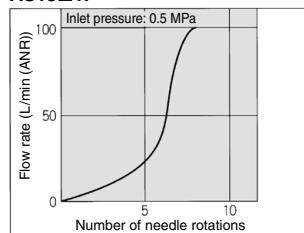
Made to Order
(For details, refer to page 1107.)

Symbol	Specifications
-X12	Lubricant: Vaseline
-X21	Grease-free (Seal: Fluorine-coated) + Throttle valve (Without check valve)
-X214	Throttle valve (Without check valve)

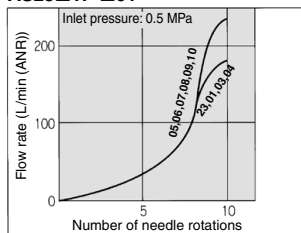
Needle Valve/Flow Rate Characteristics

Note) The flow rate characteristics are representative values.

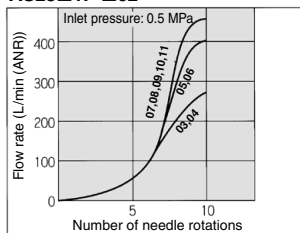
**AS12□1F
AS13□1F**



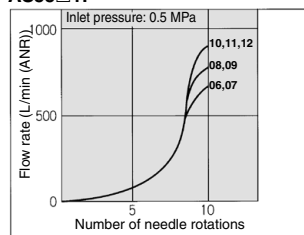
**AS22□1F-□01
AS23□1F-□01**



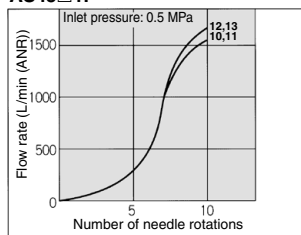
**AS22□1F-□02
AS23□1F-□02**



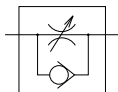
**AS32□1F
AS33□1F**



**AS42□1F
AS43□1F**



Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Indication symbol		
Symbol		

Caution

Be sure to read this before handling the products. Refer to page 11 for safety instructions and pages 19 to 22 for flow control equipment precautions.

Flow Rate and Sonic Conductance

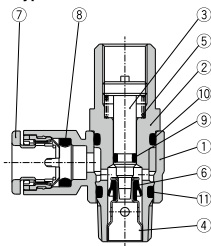
Model		AS12□1F AS13□1F	AS22□1F-□01 AS23□1F-□01	AS22□1F-□02 AS23□1F-□02		AS32□1F AS33□1F		AS42□1F AS43□1F				
Tubing O.D.	Metric size	ø3.2, ø4, ø6	ø2, ø4, ø6, ø8, ø10	ø4, ø6, ø8, ø10, ø12	ø6, ø8, ø10, ø12	ø10, ø12	ø10, ø12	ø10, ø12	ø10, ø12			
	Inch size	ø1/8", ø5/32", ø3/16", ø1/4"	ø1/8", ø3/16", ø1/4", ø5/32", ø5/16"	ø1/8", ø3/16", ø1/4", ø5/16", ø3/8"	ø1/4", ø5/16", ø3/8"	ø3/8"	ø3/8"	ø1/2"				
Controlled flow	Flow rate (L/min (ANR))	100	180	230	260	390	460	660	790	920	1580	1710
Free flow	Sonic conductance (mm ³ /s/bar)	0.3	0.54	0.7	0.8	1.2	1.4	2	2.4	2.8	4.8	5.2
Critical pressure ratio	Controlled flow	0.2	0.25	0.3		0.25		0.25				
	Free flow	0.4	0.2	0.3		0.25		0.3				

Note) Flow rate values are at a pressure of 0.5 MPa and a temperature of 20°C.

Construction

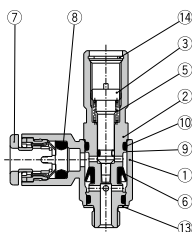
Elbow type

Meter-out type

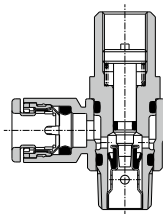


M5 type

U10/32 type

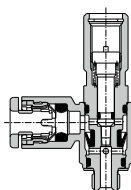


Meter-in type



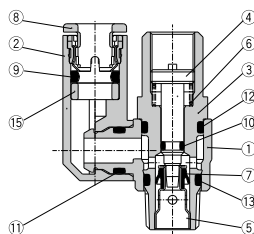
M5 type

U10/32 type



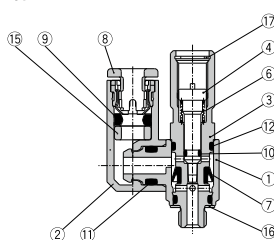
Universal type

Meter-out type

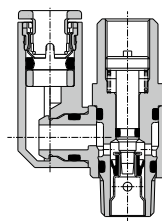


M5 type

U10/32 type

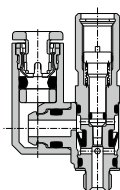


Meter-in type



M5 type

U10/32 type

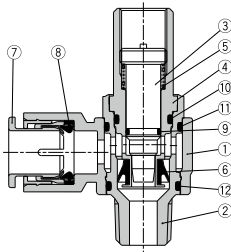


Construction

Elbow type

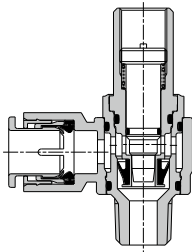
Meter-out type

AS3201F-02



Meter-in type

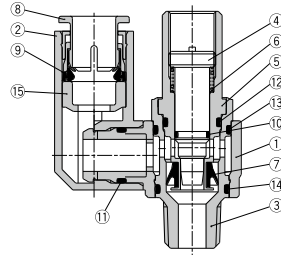
AS3211F-02



Universal type

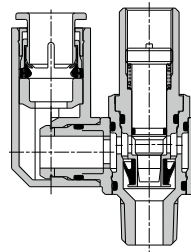
Meter-out type

AS3301F-02



Meter-in type

AS3311F-02



Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Body B	Brass	Electroless nickel plated
3	Needle	Brass	Electroless nickel plated
4	Seat ring	Brass	Electroless nickel plated
5	Spring	Steel wire ⁽¹⁾	
6	U seal	HNBR	
7	Cassette	—	
8	Seal	NBR	
9	O-ring	NBR	
10	O-ring	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	Gasket	NBR, Stainless steel	
14	Retaining ring for hole type C	Tool steel	

Note 1) M5 and U10/32 type: Stainless steel

Component Parts

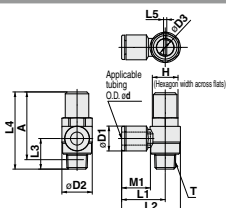
No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Body B	Brass	Electroless nickel plated
4	Needle	Brass	Electroless nickel plated
5	Seat ring	Brass	Electroless nickel plated
6	Spring	Steel wire ⁽¹⁾	
7	U seal	HNBR	
8	Cassette	—	
9	Seal	NBR	
10	O-ring	NBR	
11	O-ring	NBR	
12	O-ring	NBR	
13	O-ring	NBR	
14	O-ring	NBR	
15	Spacer	—	
16	Gasket	NBR, Stainless steel	
17	Retaining ring for hole type C	Tool steel	

Note 1) M5 and U10/32 type: Stainless steel

AS□□□1F-T Series

Construction

Elbow type



Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5	A*	M1	Weight (g)
AS12□1F-M5-23T	3.2						8.4							
AS12□1F-M5-04T	4	M5×0.8	8	9.3	9.6	4.5	17.3	22.1	12.3					10
AS12□1F-M5-06T	6						11.6			18.1	22.9	11.7		
AS22□1F-01-23ST	3.2						8.4							20
AS22□1F-01-04ST	4						9.3							
AS22□1F-01-06ST	6	R1/8	12	11.6	14.2	7	20.4	27.5	13.4					21
AS22□1F-01-08ST	8						15.2			25.3	32.4			
AS22□1F-01-10ST	10						18.5			33.1	40.2	15.3		25
AS22□1F-02-04ST	4						10.4							40
AS22□1F-02-06ST	6						12.8			25.2	34.4			
AS22□1F-02-08ST	8	R1/4	17	15.2		18.5	7			27.2	36.4	17.7		42
AS22□1F-02-10ST	10						18.5			35.3	44.5	18.3		44
AS32□1F-02-06ST	6						12.8			27.8	39.3			73
AS32□1F-02-08ST	8						15.2			29.5	41			76
AS32□1F-02-10ST	10	R1/4	19	23		9.5	31.8	43.3	21.3	54.8	1.5	49.3		80
AS32□1F-02-12ST	12						20.9			32.8	44.3			82
AS32□1F-03-06ST	6						12.8			27.8	39.3			77
AS32□1F-03-10ST	10	R3/8	19	23		9.5	31.8	43.3		19.8	52.6	1.5	47.4	79
AS32□1F-03-10ST	10						20.9			32.8	44.3			83
AS42□1F-04-10ST	10						18.5			35.2	44.5			141
AS42□1F-04-12ST	12	R1/2	24	20.9	28.6	12	35.2	49.5	24.5	62.9	1.5	55.8		142

* Reference dimensions of M5 x 0.8, R threads after installation.

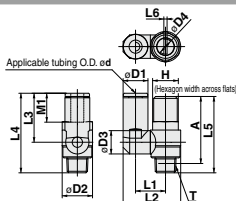
Inch Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5	A*	M1	Weight (g)
AS12□1F-U10/32-01T	1/8"						8.4							
AS12□1F-U10/32-03T	3/32"	10-32UNF	8	9.3	9.6	4.5	17.3	22.1	12.3					10
AS12□1F-U10/32-05T	5/16"						11.4			21.3	26.1			16.5
AS12□1F-U10/32-07T	1/4"						12			18.3	23.5	11.7		13.5
AS22□1F-N01-01ST	1/8"						8.4							20
AS22□1F-N01-03ST	3/32"	NPT 1/8	12.7	13.2	14.2	7	24	31.1	13.4	34.7	1.5	31.6		21
AS22□1F-N01-05ST	5/16"						9.3							
AS22□1F-N01-07ST	1/4"						13.2			23.9	31			17
AS22□1F-N01-09ST	5/16"						15.2			25.3	32.4			25
AS22□1F-N02-03ST	3/32"						10.4			25.2	34.4			40
AS22□1F-N02-05ST	5/16"	NPT 1/4	17.5	13.2	18.5	7	12.8			25.2	34.5			40
AS22□1F-N02-07ST	1/4"						15.2			27.2	36.4	17.7		42
AS22□1F-N02-09ST	5/16"						18.5			35.3	44.5	18.3		44
AS22□1F-N03-07ST	1/4"						13.2			27.8	39.3			73
AS22□1F-N02-09ST	5/16"	NPT 1/4	19	15.2	23	9.5	29.5	41	21.3	54.8	1.5	49.3		76
AS22□1F-N03-11ST	3/8"						17.9			31.8	43.3			80
AS22□1F-N03-11ST	3/8"						13.2			27.8	39.3			77
AS22□1F-N03-11ST	3/8"	NPT 3/8	19	15.2	23	9.5	29.5	41	19.8	52.6	1.5	47.4		79
AS22□1F-N03-11ST	3/8"						17.9			31.8	43.3			81
AS42□1F-N04-11ST	3/8"						18.5			35.2	44.5			141
AS42□1F-N04-13ST	1/2"	NPT 1/2	23.8	17.9	28.6	12	35.2	49.5	24.5	62.9	1.5	55.8		142

* Reference dimensions of 10-32 UNF and NPT threads after installation.

Dimensions

Universal type



Metric Size

Model	d	T	H	D1	D2	D3	L1	L2	L3	L4	L5	L6	A*	M1	Weight (g)
AS13□1F-M5-23T	3.2						8.4								
AS13□1F-M5-04T	4	M5×0.8	8	9.3	9.6	9.3	4.5	10.8		19.8	17.5	28.7			10
AS13□1F-M5-06T	6						11.6			20.3		31.8			
AS22□1F-01-23ST	3.2						8.4								21
AS22□1F-01-04ST	4						9.3								
AS22□1F-01-06ST	6	R1/8	12	11.6	14.2	7	13.1			24.4	17.5	30.9			22
AS22□1F-01-08ST	8						11.6			24.9					
AS22□1F-01-10ST	10						15.2			16.2	30.9	28.2	40.8		25
AS22□1F-02-04ST	4						10.4			16.2	30.6	21.9	39.6		40
AS22□1F-02-06ST	6						12.8			18.4	34	25.2	42.1		41
AS22□1F-02-08ST	8	R1/4	17	15.2		12.9	7			18.3	35.2	28.2	45.1		44
AS22□1F-02-10ST	10						18.5			20.2	38.7	31	47.9		48
AS32□1F-02-06ST	6						12.8			38.5	25.2	46.5			73
AS32□1F-02-08ST	8						15.2			38.7	28.2	49.5			76
AS32□1F-02-10ST	10	R1/4	19	23		9.5	23			43.7	32.6	53.9			80
AS32□1F-02-12ST	12						20.9			44.9	34.4	55.7			82
AS32□1F-03-06ST	6						12.8			38.5	25.2	46.5			78
AS32□1F-03-08ST	8						15.2			38.7	28.2	48			81
AS32□1F-03-10ST	10	R3/8	19	23		9.5	23			43.7	32.6	52.4			85
AS32□1F-03-12ST	12						20.9			44.9	34.4	54.2			87
AS42□1F-04-10ST	10						18.5			45.8	34.4	56.1			145
AS42□1F-04-12ST	12	R1/2	24	20.9	28.6	12	25.8			46.8	36.3	60.8			147

* Reference dimensions of M5 x 0.8, R threads after installation.

Inch Size

Model	d	T	H	D1	D2	D3	D4	L1	L2	L3	L4	L5	L6	A*	M1	Weight (g)
AS13□1F-U10/32-01T	1/8"							8.4								
AS13□1F-U10/32-03T	3/32"	10-32UNF	8	9.3	9.6	9.3	4.5	10.8		19.8	17.5	28.7				10
AS13□1F-U10/32-05T	5/16"							11.4		20.3						
AS13□1F-U10/32-07T	1/4"							12		21.6	20.7	31.9				11
AS22□1F-N01-01ST	1/8"							8.4		24.4						21
AS22□1F-N01-03ST	3/32"	NPT 1/8	12.7	11.4	14	10.9	7	9.3		24.9	17.5	30.9				22
AS22□1F-N01-05ST	5/16"							13.1		26.8	23.9	37.3	34.7	1.5	31.6	16.5
AS22□1F-N01-07ST	1/4"							13.2		29.9	25.6	38.2				17
AS22□1F-N01-09ST	5/16"							15.2		30.9	28.2	40.8				25
AS22□1F-N02-03ST	3/32"							10.4		30.6	21.9	39.6				40
AS22□1F-N02-05ST	5/16"	NPT 1/4	17.5	13.2	19	7		12.8		31.1	23.9	41.6				41
AS22□1F-N02-07ST	1/4"							15.2		34.2	25.6	42.5	40.2	1.5	34.7	17
AS22□1F-N02-09ST	5/16"							18.3		35.2	28.2	45.1				44
AS22□1F-N03-11ST	3/8"							20.2		38.7	31	47.9				48
AS32□1F-N02-03ST	3/32"							13.2		38.7	25.6	46.9				73
AS32□1F-N02-05ST	5/16"	NPT 1/4	19	15.2	23	12.9	9.5	20.6		38.7	28.2	49.5	54.8	1.5	49.3	18.5
AS32□1F-N02-07ST	1/4"							17.9		43.7	32.6	53.9				82
AS32□1F-N02-09ST	5/16"							13.2		38.7	25.6	45.4				78
AS32□1F-N03-11ST	3/8"	NPT 3/8	19	15.2	23	12.9	9.5	20.6		38.7	28.2	48	52.6	1.5	47.4	18.5
AS32□1F-N03-11ST	3/8"							17.9		43.7	32.6	52.4				81
AS42□1F-N04-11ST	3/8"							18.5		45.8	34.4	56.1				145
AS42□1F-N04-13ST	1/2"	NPT 1/2	23.8	17.9	29	19.4	12	25.8		46.8	36.3	60.8	62.9	1.5	55.8	147

* Reference dimensions of 10-32 UNF and NPT threads after installation.

AS□□□1F-T Series

Made to Order Specifications

Please contact SMC for detailed dimensions, specifications and lead times.



Lubricant: Vaseline

X12

Ex.) AS1201F-M5-23T-X12

**Grease-free (Seal: Fluorine Coated) +
Throttle Valve (Without Check Valve)**

X21

Ex.) AS1201F-M5-23T-X21

Note 1) Not particle-free

Note 2) This product is a restrictor without a check valve (no control direction).

Be aware that all part numbers are for a meter-out type; there is no part number for a meter-in type.

Throttle Valve (Without Check Valve)

X214

Ex.) AS1201F-M5-23T-X214

Note) This product is a restrictor without a check valve (no control direction). Be aware that all part numbers are for a meter-out type; there is no part number for a meter-in type.

Tamper Proof Speed Controller with One-touch Fitting In-line Type

AS□□□1F-T Series



Model

Model	Applicable tubing O.D.													
	Metric size						Inch size							
	3.2	4	6	8	10	12	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"	
AS1001F	●	●	●				●		●	●				
AS2001F		●	●					●	●	●				
AS2051F			●	●					●	●	●			
AS3001F			●	●	●	●				●	●	●		
AS4001F					●	●						●	●	

Specifications

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Applicable tubing material ⁽¹⁾	Nylon, Soft nylon, Polyurethane

Note 1) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used.
(Refer to pages 678 and 682 for details.)

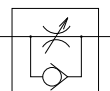
Note 2) Brass parts are all electroless nickel plated.

Flow Rate and Sonic Conductance

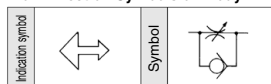
	Model	AS1001F		AS2001F		AS2051F		AS3001F			AS4001F	
Tubing O.D.	Metric size	ø3.2, ø4, ø6	ø4	ø6	ø6	ø8	ø6	ø8	ø10, ø12	ø10	ø12	
	Inch size	ø1/8", ø5/32" ø3/16", ø1/4"	ø5/32"	ø3/16", ø1/4"	ø3/16"	ø1/4", ø5/16"	ø1/4"	ø5/16"	ø3/8"	ø3/8"	ø1/2"	
Controlled flow	Flow rate (L/min (ANR))	100	130	230	290	460	420	660	920	1050	1390	
Free flow	Sonic conductance dm ³ /(s·bar)	0.3	0.4	0.7	0.9	1.4	1.3	2	2.8	3.2	4.2	
Critical pressure ratio	Controlled flow	0.2	0.2		0.2		0.2			0.2		
	Free flow	0.25	0.25		0.25		0.25			0.25		

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

Symbol



Flow Direction Symbols on Body



Made to Order
(For details, refer to page 1110.)

Symbol	Specifications
-X12	Lubricant: Vaseline
-X21	Grease-free (Seal: Fluorine-coated) + Throttle valve (Without check valve)
-X214	Throttle valve (Without check valve)

Caution

Be sure to read this before handling the products. Refer to page 11 for safety instructions and pages 19 to 22 for flow control equipment precautions.

How to Order

AS **200** 1F-**06** T-**□**

Body size	
100	M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

With One-touch fittings

Tamper proof

Note) Speed controller requires a special tool for flow adjustment. Order separately with part number, AS-T-1.

Applicable tubing O.D. ^{Note)}

Metric size	Inch size
23 ø3.2 *	01 ø1/8"
04 ø4	03 ø5/32"
06 ø6	05 ø3/16"
08 ø8	07 ø1/4"
10 ø10	09 ø5/16"
12 ø12	11 ø3/8"
	13 ø1/2"

Note) For applicable tubing O.D. selection, refer to the Model.

* Use ø1/8" tube.

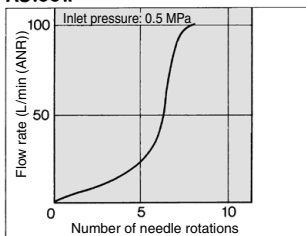
Made to Order

Refer to page 1110 for details.

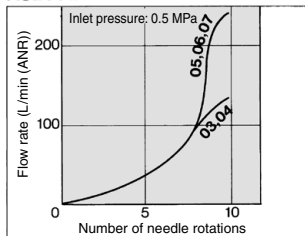
Needle Valve/Flow Rate Characteristics

Note) The flow rate characteristics are representative values.

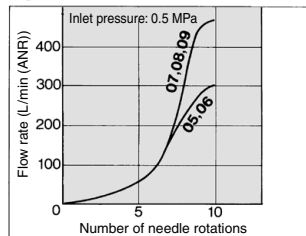
AS1001F



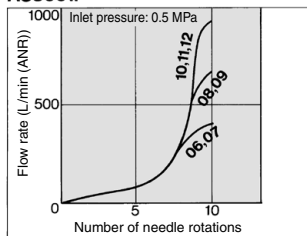
AS2001F



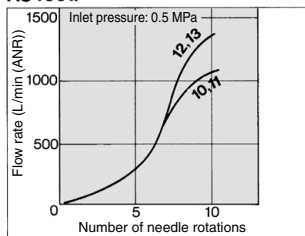
AS2051F



AS3001F

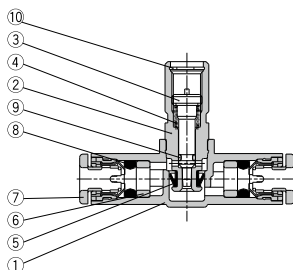


AS4001F

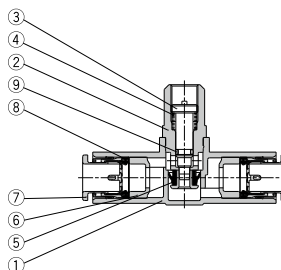


Construction

AS1001F



AS2001F to AS4001F



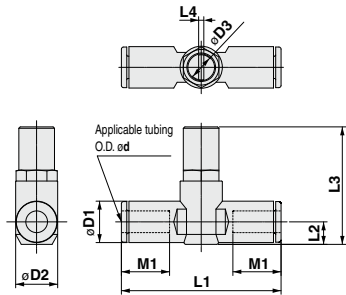
Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Body B	Brass	Electroless nickel plated
3	Needle	Brass	Electroless nickel plated
4	Spring	Steel wire ⁽¹⁾	
5	U seal	HNBR	
6	Spacer	—	
7	Cassette	—	
8	Seal	NBR	
9	O-ring	NBR	
10	Retaining ring for hole type C	Tool steel	

Note 1) AS1001F type: Stainless steel

AS□□□1F-T Series

Dimensions



Metric Size

Model	d	D1	D2	D3	L1	L2	L3	L4	M1	Weight(g)
AS1001F-23T	3.2	8.4	10.5	4.5	38	4.5	26	0.7	12.7	8
AS1001F-04T	4	9.3			39.2	5.2	26.6		9	
AS1001F-06T	6	11.6	12.3	7	40.7	6.2	27.7	1.5	13.5	10
AS2001F-04T	4	9.3			40.7	5.2	31.9		12.7	15
AS2001F-06T	6	11.6			44.8	6.3	33		13.5	16
AS2051F-06T	6	12.8	15.5	7	53.2	6.7	35.2	1.5	17	33
AS2051F-08T	8	15.2			59.8	8.1	36.5		18	36
AS3001F-06T	6	12.8	20.6	9.5	59	7.4	45	1.5	17	56
AS3001F-08T	8	15.2			64.4	8.2	45.8		18	60
AS3001F-10T	10	18.5			71.6	9.8	47.3		21	64
AS3001F-12T	12	20.9	27.6	12	76	11	48.5	1.5	22	68
AS4001F-10T	10	18.5			77.7	11.3	55.4		21	121
AS4001F-12T	12	20.9			82.1		56.4		22	125

Inch Size

Model	d	D1	D2	D3	L1	L2	L3	L4	M1	Weight(g)
AS1001F-01T	1/8"	8.4	10.5	4.5	38	4.5	26	0.7	12.7	8
AS1001F-03T	5/32"	9.3			39.2	5.2	26.6		9	
AS1001F-05T	3/16"	11.4	12.3	7	40.7	6.2	27.7	1.5	13.5	10
AS1001F-07T	1/4"	12			40.7	5.2	31.9		12.7	15
AS2001F-03T	5/32"	9.3			40.7	5.2	31.9		12.7	15
AS2001F-05T	3/16"	11.4	15.5	7	50	6.2	32.8	1.5	16.5	21
AS2001F-07T	1/4"	13.2			52.2	7.1	33.7		17	19
AS2051F-05T	3/16"	11.4	20.6	9.5	52.2	6.2	34.9	1.5	16.5	35
AS2051F-07T	1/4"	13.2			54.4	7.1	35.7		17	33
AS2051F-09T	5/16"	15.2			59.8	8.1	36.7		18	36
AS3001F-07T	1/4"	13.2	27.6	12	59	7.4	45.2	1.5	17	56
AS3001F-09T	5/16"	15.2			64.4	8.2	46		18	60
AS3001F-11T	3/8"	17.9			70.8	9.5	47.2		21	72
AS4001F-11T	3/8"	17.9	27.6	12	76.9	10.3	55.5	1.5	21	129
AS4001F-13T	1/2"	21.7			83.1	11.6	56.9		22	142

Made to Order



Lubricant: Vaseline

X12

Ex.) AS1001F-23T-X12

Grease-free (Seal: Fluorine Coated) +
Throttle Valve (Without Check Valve)

X21

Ex.) AS1001F-23T-X21

Note 1) Not particle-free

Throttle Valve (Without Check Valve)

X214

Ex.) AS1001F-23T-X214

Tamper Proof Dual Speed Controller with One-touch Fitting

ASD□□□F-T Series

RoHS

Specifications

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1 MPa
Min. operating pressure	0.1 MPa
Ambient and fluid temperature	-5 to 60°C (No freezing)
Applicable tubing material ⁽¹⁾	Nylon, Soft nylon, Polyurethane

Note 1) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used.
(Refer to pages 678 and 682 for details.)

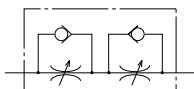
Note 2) Brass parts are all electroless nickel plated, provided as standard.



Model

Model	Port size	Applicable tubing O.D.										
		Metric size					Inch size					
		4	6	8	10	12	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"
ASD230F-M5	M5 x 0.8	●	●									
ASD330F-01	R 1/8		●	●								
ASD430F-02	R 1/4		●	●	●							
ASD530F-02	R 1/4		●	●	●	●						
ASD530F-03	R 3/8		●	●	●	●						
ASD630F-04	R 1/2				●	●						
ASD230F-U10/32	10-32 UNF						●	●	●	●		
ASD330F-N01	NPT 1/8								●	●		
ASD430F-N02	NPT 1/4								●	●	●	●
ASD530F-N02	NPT 1/4								●	●	●	●
ASD530F-N03	NPT 3/8								●	●	●	●
ASD630F-N04	NPT 1/2										●	●

Symbol



Flow Rate and Sonic Conduction

Model		ASD230F	ASD330F	ASD430F		ASD530F			ASD630F	
Tubing O.D.	Metric size	ø4, ø6	ø6, ø8	ø6	ø8, ø10	ø6	ø8	ø10, ø12	ø10	ø12
	Inch size	ø1/8" ø5/32" ø3/16" ø1/4"	ø3/16" ø1/4"	—	ø1/4" ø5/16" ø3/8"	ø1/4"	ø5/16"	ø3/8"	—	ø3/8"
Controlled flow	Flow rate (L/min (ANR))	75	175	295	350	500	600	700	1200	1300
Free flow	Sonic conduction dm ³ /(s.bar)	0.22	0.54	0.9	1.06	1.52	1.82	2.14	3.66	3.96
Critical pressure ratio	Controlled flow	0.25	0.2	0.2		0.2			0.2	
	Free flow	0.3	0.15	0.15		0.15			0.15	

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

Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Indication symbol		
Symbol		

Made to Order



Lubricant: Vaseline

X12

How to Order

ASD 3 3 0 **F** - 01 - 06 **S** **T** -

Body size

2	M5 standard
3	1/8 standard
4	1/4 standard
5	3/8 standard
6	1/2 standard

Universal

With One-touch fitting

Tamper proof
Note) Speed controller requires a special tool for flow adjustment. Order separately with part number, AS-T-1.

With seal
Note) In case that connecting port is either M5 or 10-32 UNF thread, it is not available with seal. With gasket is provided as standard.

Applicable tubing O.D. Note)

Metric size	Inch size
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

Inch size	Metric size
01	ø1/8"
03	ø5/32"
05	ø3/16"
07	ø1/4"
09	ø5/16"
11	ø3/8"

Made to Order

X12 Lubricant: Vaseline

Ex.) ASD230F-M5-04T-X12

Port size

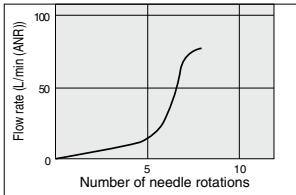
M5	M5 x 0.8
01	R 1/8
02	R 1/4
03	R 3/8
04	R 1/2
U10/32	10-32 UNF
N01	NPT 1/8
N02	NPT 1/4
N03	NPT 3/8
N04	NPT 1/2

Note) For applicable tubing O.D. selection, refer to the Model on page 1111.

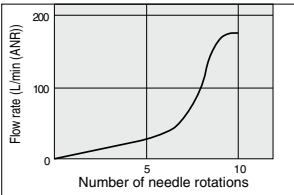
Needle Valve/Flow Rate Characteristics

Note) The flow rate characteristics are representative values.

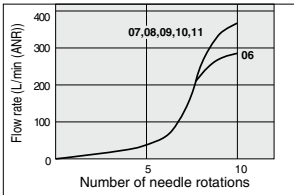
ASD230F



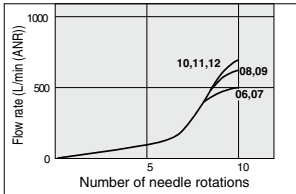
ASD330F



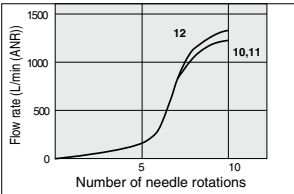
ASD430F



ASD530F

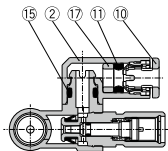


ASD630F

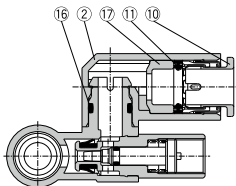


Construction

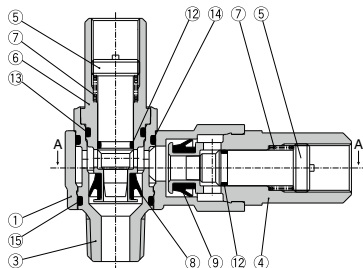
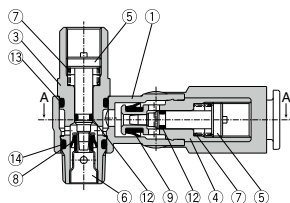
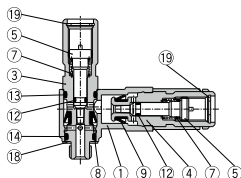
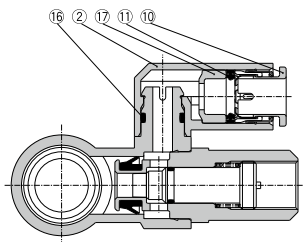
ASD230F



**ASD330F/430F
ASD530F/630F**



ASD530F-02



Component Parts

No.	Description	Material	Note
1	Body A	PBT	
2	Elbow body	PBT	
3	Body B	Brass	Electroless nickel plated
4	Body B	Brass	Electroless nickel plated
5	Needle	Brass	Electroless nickel plated
6	Seat ring	Brass	Electroless nickel plated
7	Spring	Steel wire ⁽¹⁾	
8	U seal	HNBR	
9	U seal	HNBR	
10	Cassette	—	
11	Seal	NBR	
12	O-ring	NBR	

Component Parts

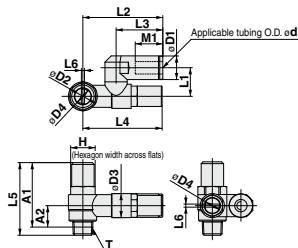
No.	Description	Material	Note
13	O-ring	NBR	
14	O-ring	NBR	
15	O-ring	NBR	
16	O-ring	NBR	
17	Spacer	—	
18	Gasket	NBR, Stainless steel	
19	Retaining ring for hole type C	Tool steel	

Note 1) ASD230F: Stainless steel

ASD F-T Series

Dimensions

Metric size



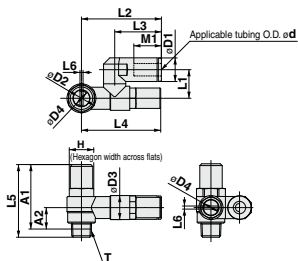
Metric Size

Model	d	T	H	D1	D2	D3	D4	L1	L2	L3	L4	L5	L6	A1*	A2*	M1	Weight(g)
ASD230F-M5-04T	4	M5 x 0.8	8	9.3	9.6	10	4.5	11.7	29.4	17.5	30.7	31	0.7	27.4	7.8	12.9	17
ASD230F-M5-06T	6			11.6					32.5	20.6						13.7	18
ASD330F-01-06ST	6	R 1/8	12	11.6	14.2	11.8	7	14	38.5	22.9	38.9	34.7	1.5	31.6	10.6	13.7	36
ASD330F-01-08ST	8			15.2				15.8	44.8	28.2						18.5	38
ASD430F-02-06ST	6	R 1/4	17	12.8	18.5	15	7	18	43.5	25.2	41.7	40.2	1.5	34.7	11	17	72
ASD430F-02-08ST	8			15.2				19.7	46.5	28.2						21	74
ASD430F-02-10ST	10	R 1/4	19	18.5	23	19.8	9.5	20.3	49.3	31	53.7	54.8	1.5	49.3	15.4	21	77
ASD530F-02-06ST	6			12.8				20.3	48.3	25.2						17	107
ASD530F-02-08ST	8			15.2				20.3	51.3	28.2						18.5	109
ASD530F-02-10ST	10			18.5				23.1	54.1	32.6						21	113
ASD530F-02-12ST	12	R 3/8	19	20.9	23	19.8	9.5	23.1	55.9	34.4	53.7	52.6	1.5	47.4	14	22	116
ASD530F-03-06ST	6			12.8				20.3	48.3	25.2						17	116
ASD530F-03-08ST	8			15.2				20.3	51.3	28.2						18.5	135
ASD530F-03-10ST	10			18.5				23.1	54.1	32.6						21	140
ASD530F-03-12ST	12	R 1/2	24	20.9	28.6	26.5	12	25.9	55.9	34.4	69.1	62.9	1.5	55.8	18.6	22	143
ASD630F-04-10ST	10			18.5				23.1	64.3	32.6						21	254
ASD630F-04-12ST	12			20.9				25.9	66.1	34.4						22	256

* Reference dimensions of M5 x 0.8, R threads after installation.

Dimensions

Inch size



Inch Size

Model	d	T	H	D1	D2	D3	D4	L1	L2	L3	L4	L5	L6	A1*	A2*	M1	Weight(g)
ASD230F-U10/32-01T	1/8"	10-32 UNF	8	8.4	9.6	10	4.5	11.7	29.4	17.5	30.7	31	0.7	27.4	7.8	12.9	17
ASD230F-U10/32-03T	5/32"			9.3					32.5	20.6						13.7	18
ASD230F-U10/32-05T	3/16"			11.4					35.2	23.3						16.5	20
ASD230F-U10/32-07T	1/4"			12					32.6	20.7						13.5	18
ASD330F-N01-05ST	3/16"	NPT 1/8	12.7	11.6	14.2	11.8	7	14	38.5	23.9	38.9	34.7	1.5	31.6	10.6	16.5	37
ASD330F-N01-07ST	1/4"			13.2				15.8	42.2	25.6						17	38
ASD330F-N01-09ST	5/16"			15.2				15.8	44.8	28.2						18.5	
ASD430F-N02-07ST	1/4"	NPT 1/4	17.5	13.2	18.5	15	7	18	43.9	25.6	41.7	40.2	1.5	34.7	11	17	74
ASD430F-N02-09ST	5/16"			15.2				19.7	46.5	28.2						21	81
ASD430F-N02-11ST	3/8"			18.5				19.7	49.3	31						21	81
ASD530F-N02-07ST	1/4"	NPT 1/4	19	13.2	23	19.8	9.5	20.3	48.7	25.6	53.7	54.8	1.5	49.3	15.4	17	109
ASD530F-N02-09ST	5/16"			15.2				20.3	51.3	28.2						18.5	33
ASD530F-N02-11ST	3/8"			18.5				23.1	54.1	32.6						21	117
ASD530F-N02-13ST	1/2"			20.9				23.1	56.9	34.4						22	124
ASD530F-N03-09ST	5/16"	NPT 3/8	19	15.2	23	19.8	9.5	20.3	51.3	28.2	53.7	52.6	1.5	47.4	14	18.5	135
ASD530F-N03-11ST	3/8"			18.5				23.1	54.1	32.6						21	144
ASD630F-N04-11ST	3/8"	NPT 1/2	23.8	18.5	28.6	26.5	12	25.9	64.3	32.6	69.1	62.9	1.5	55.8	18.6	21	256

* Reference dimensions of 10-32 UNF and NPT threads after installation.



ASD□□□F-T Series Specific Product Precautions

Be sure to read this before handling the products. Refer to page 11 for safety instructions and pages 19 to 22 for flow control equipment precautions.

Design/Selection

⚠ Caution

1. Single acting cylinder

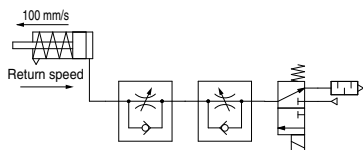
When controlling a single acting cylinder, the cylinder's return speed will differ depending on the operating conditions. Operate after confirming the maximum return speeds shown in the table below.

Speed Controller	Cylinder	Solenoid valve	Tubing	Silencer	Max. return speed (mm/s)		
					10	20	30
ASD230F	CJ2	SYJ500	TU0604 1m	AN110-01	ø6		
					ø10		
					ø16		
					ø20		
ASD330F	CM2	SYJ700	TU0604 1m	AN110-01	ø25		
					ø32		

* Values are measured at 0.5 MPa and 20°C.

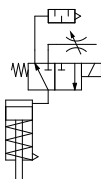
<Operating conditions>

- Cylinder extension speed: 100 mm/s
- Meter-out needle fully open



(Reference) Recommended circuit for high return speed

When low extension speed and high return speed are desired, the following circuit using 3-port is recommended.



Note) Use AS-F series with -X214 for the throttle valve.

Tamper Proof Speed Controller Standard Type Elbow Type (Metal Body)

AS□2□0-T Series

RoHS

Model/ Specifications



Specifications	Model	AS12-0-M5	AS12-0-U10/32	AS22-0-01	AS22-0-02	AS32-0-02	AS32-0-03	AS42-0-04
Port size		M5 x 0.8	10-32 UNF	1/8	1/4	1/4, 3/8 (Note 4)	3/8	1/2
Fluid		Air						
Proof pressure		1.5 MPa						
Max. operating pressure		1 MPa						
Min. operating pressure		0.1 MPa						
Ambient and fluid temperature		-5 to 60°C (No freezing)						
Controlled flow	Flow rate (L/min (ANRI))	105	230	460	920	1700		
Free flow	Sonic conductance dm ³ /(s·bar)	0.32	0.7	1.4	2.8	5.2		
Critical pressure ratio	Controlled flow	0.2	0.25	0.3	0.25	0.25		
	Free flow	0.4	0.2	0.3	0.2	0.2		

Note 1) Flow rate values are measured at 0.5 MPa and 20°C.

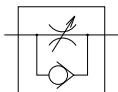
Note 2) Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the metal body.

Note 3) Brass parts are all electroless nickel plated, provided as standard.

Note 4) Female thread port size (valve side) is 3/8 for AS32□0-□02.

How to Order

Symbol



Flow Direction Symbols on Body

	Meter-out type	Meter-in type
Indication symbol		
Symbol		

Caution

Be sure to read this before handling the products. Refer to page 11 for safety instructions and pages 19 to 22 for flow control equipment precautions.

AS 2 2 0 0 - 01 - S T

Body size

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

Elbow

Control

0	Meter-out
1	Meter-in

Tamper proof

Note) Speed controller requires a special tool for flow adjustment. Order separately with part number, AS-T-1.

With seal

Note) When connecting port is either M5 or 10-32 UNF thread, it is not available with seal. With gasket is provided as standard.

Port size

Symbol	Cylinder side	In the side of solenoid valve
M5	M5 x 0.8	M5 x 0.8
01	R 1/8	Rc 1/8
02	R 1/4	Rc 1/4 (Note 1)
		Rc 3/8 (Note 2)
03	R 3/8	Rc 3/8
04	R 1/2	Rc 1/2
F01	R 1/8	G 1/8
		G 1/4 (Note 1)
F02	R 1/4	G 3/8 (Note 2)
F03	R 3/8	G 3/8
F04	R 1/2	G 1/2
U10/32	10-32 UNF	10-32 UNF
N01	NPT 1/8	NPT 1/8
		NPT 1/4 (Note 1)
N02	NPT 1/4	NPT 3/8 (Note 2)
N03	NPT 3/8	NPT 3/8
N04	NPT 1/2	NPT 1/2

Note 1) AS22□0-□02

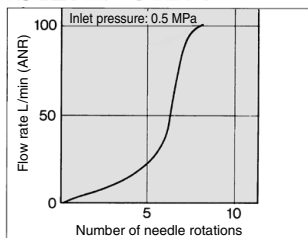
Note 2) AS32□0-□02

Tamper Proof Speed Controller Standard Type, Elbow Type (Metal Body) **AS□2□0-T Series**

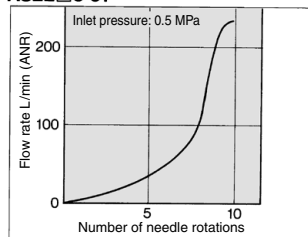
Needle Valve/Flow Rate Characteristics

Note) The flow rate characteristics are representative values.

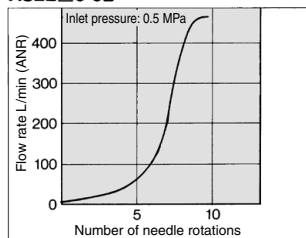
AS12□0-M5·AS12□0-U10/32



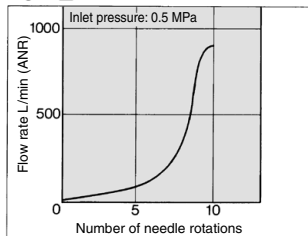
AS22□0-01



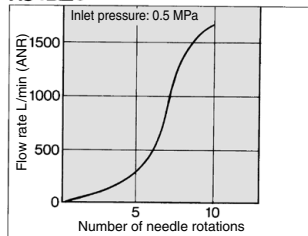
AS22□0-02



AS32□0



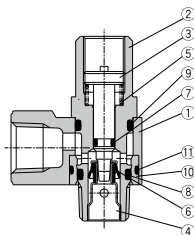
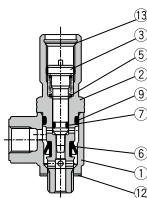
AS42□0



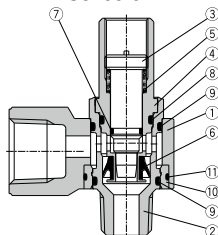
Construction

Meter-out type

M5 type
U10/32 type

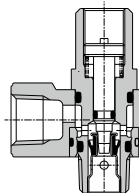
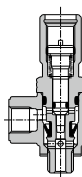


AS3200-02

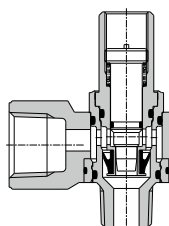


Meter-in type

M5 type
U10/32 type



AS3210-02



Component Parts

No.	Description	Material	Note
1	Body A	Zinc alloy	Chromate plated
2	Body B	Brass	Electroless nickel plated
3	Needle	Brass	Electroless nickel plated
4	Seat ring	Brass	Electroless nickel plated
5	Spring	Steel wire ⁽¹⁾	
6	U seal	HNBR	
7	O-ring	NBR	

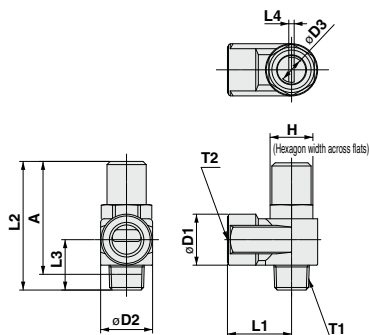
Component Parts

No.	Description	Material	Note
8	O-ring	NBR	
9	O-ring	NBR	
10	Bushing	PBT	
11	O-ring	NBR	
12	Gasket	NBR, Stainless steel	
13	Retaining ring for hole type C	Tool steel	

Note 1) M5 and U10/32 type: Stainless steel

AS□2□0-T Series

Dimensions



Dimensions

Model	T1	T2	H	D1	D2	D3	L1	L2	L3	L4	A*	Weight (g)
AS12□0-M5-T	M5 x 0.8	M5 x 0.8	8	9	9	4.5	10	31	10.3	0.7	27.4	13
AS12□0-U10/32-T	10-32 UNF	10-32 UNF	8	9	9	4.5	10	31	10.3	0.7	27.4	13
AS22□0-01-ST	R 1/8	Rc 1/8	12	14.3	14.6	7	18	34.7	13.2	1.5	31.6	33
AS22□0-F01-ST	NPT 1/8	G 1/8	12.7	14.3	14.6	7	18	34.7	13.2	1.5	31.6	33
AS22□0-02-ST	R 1/4	Rc 1/4	17	18	19.5	7	27.2	40.2	17.5	1.5	36.7	72
AS22□0-F02-ST	NPT 1/4	G 1/4	17.5	18	19.5	7	27.2	40.2	17.5	1.5	36.7	72
AS22□0-N02-ST	NPT 1/4	NPT 1/4	17.5	18	19.5	7	27.2	40.2	17.5	1.5	36.7	72
AS32□0-02-ST	R 1/4	Rc 3/8	19	22.5	24.3	9.5	30	54.8	21.9	1.5	49.3	123
AS32□0-F02-ST	NPT 1/4	G 3/8	19	22.5	24.3	9.5	30	54.8	21.9	1.5	49.3	123
AS32□0-N02-ST	NPT 1/4	NPT 3/8	19	22.5	24.3	9.5	30	54.8	21.9	1.5	49.3	123
AS32□0-03-ST	R 3/8	Rc 3/8	19	22.5	24.3	9.5	30	52.6	19.7	1.5	47.4	128
AS32□0-F03-ST	NPT 3/8	G 3/8	19	22.5	24.3	9.5	30	52.6	19.7	1.5	47.4	128
AS32□0-N03-ST	NPT 3/8	NPT 3/8	19	22.5	24.3	9.5	30	52.6	19.7	1.5	47.4	128
AS42□0-04-ST	R 1/2	Rc 1/2	24	27.5	28.5	12	38.5	62.9	25.8	1.5	55.8	222
AS42□0-F04-ST	NPT 1/2	G 1/2	24	27.5	28.5	12	38.5	62.9	25.8	1.5	55.8	222
AS42□0-N04-ST	NPT 1/2	NPT 1/2	23.8	27.5	28.5	12	38.5	62.9	25.8	1.5	55.8	222

* Reference thread dimensions after installation.