Regulators

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Single Stage Regulator for General Applications | Low to intermediate flow

Series AK1000

- **High inlet pressure type: Max. 3500 psig (24.1 MPa)**
- **Flow capacity Standard: to 30 slpm**
  HF (option): to 120 slpm
- **Body material: Stainless steel and Brass available**
- **Hastelloy internals available for corrosion resistance**

How to Order

Port Number ① ② ③ ④ ⑤

AK10 01 S 4PL 4 4 0 0 □ □ □ □ □

Delivery pressure

Code	Delivery pressure	Code	Delivery pressure
01	0.5 to 10 psig (0.0034 to 0.07 MPa)	**15**	5 to 150 psig (0.034 to 1.0 MPa)
02	1 to 30 psig (0.007 to 0.2 MPa)	**20**	5 to 200 psig (0.034 to 1.4 MPa)
06	2 to 60 psig (0.014 to 0.4 MPa)	**30**	5 to 300 psig (0.034 to 2.1 MPa)
10	2 to 100 psig (0.014 to 0.7 MPa)	**50**	10 to 500 psig (0.07 to 3.4 MPa)

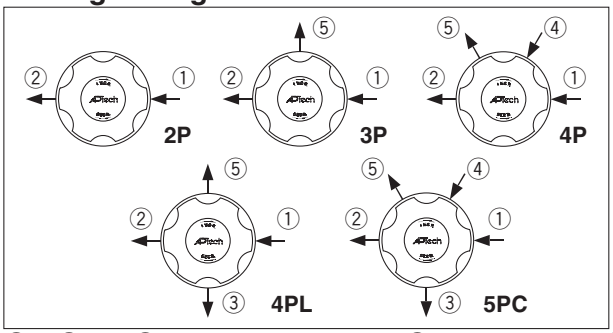
Material

Code	Body	Poppet	Diaphragm
B	Brass	316 SS	316 SS
S	316 SS		
SH		Hastelloy® C-22	Hastelloy® C-22

Ports

Code	Ports	Material B	Material S, SH
2P	Refer to the following porting configurations.		●
3P			●
4P			●
4PL		●	●
5PC		●	●

Porting Configuration



①IN ②OUT ③Extra bottom port (Outlet) ④Gauge port (Inlet) ⑤Gauge port (Outlet)

Connections (Inlet①, Outlet②)

Code	Connections
4	NPT 1/4 inch
4T	1/4 inch compression
6T	3/8 inch compression

Gauge port (Extra bottom outlet③, Inlet④, Outlet⑤)

Code	Pressure gauge ∗1) psig/bar unit	Pressure gauge ∗1) MPa unitunit
No code	No gauge port	
0	No pressure gauge (Connections: 1/4 inch NPT)	
V3	-30 in.Hg to 30 psig	-0.1 to 0.2 MPa
1	-30 in.Hg to 100 psig	-0.1 to 0.7 MPa
2	0 to 200 psig	0 to 1.5 MPa
10	0 to 1000 psig	0 to 7 MPa
40	0 to 4000 psig	0 to 28 MPa

∗1) Other range available. Refer to gauge guide (P.94,95).

Sample Order Number

	Port ①	②	③	④	⑤	
AK1002S	2P	4	4			
	3P	4	4		V3	MPA
	4P	4	4	1	V3	MPA
	4PL	4	4	0	V3	MPA
	5PC	4	4	0	1	V3	MPA

Bonnet option

Code	Bonnet
No code	Standard
P	Panel installation ∗6)

∗6) Panel mounting hole: dia. 1.42 inch (36.1 mm).

Option

Code	Specification
No code	Standard (Cv: 0.09)
HF	High flow (Cv: 0.15)

Seat material

Code	Material
No code	PCTFE (Standard)
VS	Vespel® ∗3)
PK	PEEK
TF	PTFE ∗4) ∗5)

∗3) Not available with SH material.
∗4) Source pressure rating is limited to 300 psig (2.1 MPa) or less.
∗5) PTFE seats reduce seat abrasion for flow cycle application. Gas permeation is greater with PTFE than PCTFE.

Pressure gauge unit ∗2)

Code	Unit
No code	psig/bar
MPA	MPa

∗2) Pressure gauge unit MPa or psig/bar selectable. However under Japanese regulation, only MPa is available in Japan.

Specifications

Operating Parameters	AK1001	AK1002	AK1006	AK1010	AK1015	AK1020	AK1030	AK1050
Delivery pressure	0.5 to 10 psig (0.0034 to 0.07 MPa)	1 to 30 psig (0.007 to 0.2 MPa)	2 to 60 psig (0.014 to 0.4 MPa)	2 to 100 psig (0.014 to 0.7 MPa)	5 to 150 psig (0.034 to 1.0 MPa)	5 to 200 psig (0.034 to 1.4 MPa)	5 to 300 psig (0.034 to 2.1 MPa)	10 to 500 psig (0.07 to 3.4 MPa)
Gas	Select compatible materials of construction for the gas							
Source pressure	Vacuum to 300 psig (2.1 MPa)	Vacuum to 3500 psig (24.1 MPa) ∗1)						
Proof pressure (Inlet)	4500 psig (30.7 MPa)							
Burst pressure	10000 psig (69 MPa)							
Ambient and operating temperature	-40 to 71 °C (No freezing) ∗2)							
Cv	0.09							
Leak rate	1 x 10^{-10} Pa·m^3/sec							
Connections	NPT female, Compression							
Supply pressure effect	0.38 pisg (0.0026 MPa) rise in delivery pressure per 100 psig (0.7 MPa) source pressure drop							
Installation	Bottom mount (Option: panel mount)							
Internal volume	0.49 in^3 (8 cm^3)							
Mass	1.09 kg ∗3)							

∗1) Max 300 psig (2.1 MPa) for PTFE seat.
∗2) -10 to 90 °C for Vespel® and PEEK seat. Optional ambient and operating temperature range available. Please contact SMC.
∗3) Mass, including individual boxed weight, may vary depending on connections or options.

Option

High flow

Higher flow capacity with internal changes only, no change in external dimensions. Changes from the standard type are:

Option	Other Parameters	AK1001	AK1002	AK1006	AK1010	AK1015	AK1020	AK1030	AK1050
HF	**Cv**	0.15							
	Supply pressure effect	0.75 psig (0.0052 MPa) rise in delivery pressure per 100 psig (0.7 MPa) source pressure drop							

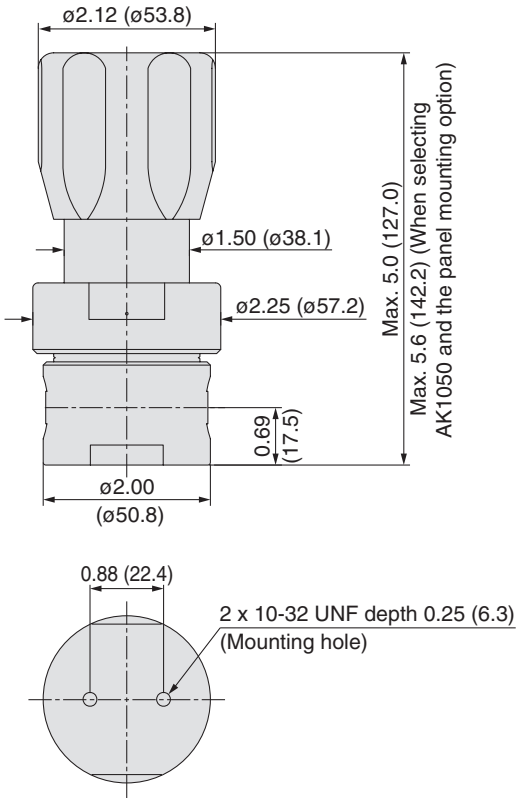
Wetted Parts Material

Wetted Parts	B	S	SH
Body	Brass	316 SS	
Poppet	316 SS		Hastelloy® C-22
Diaphragm	316 SS		Hastelloy® C-22
Seat	PCTFE (Option: Vespel®, PEEK, PTFE)		PCTFE (Option: PEEK, PTFE)

Dimensions

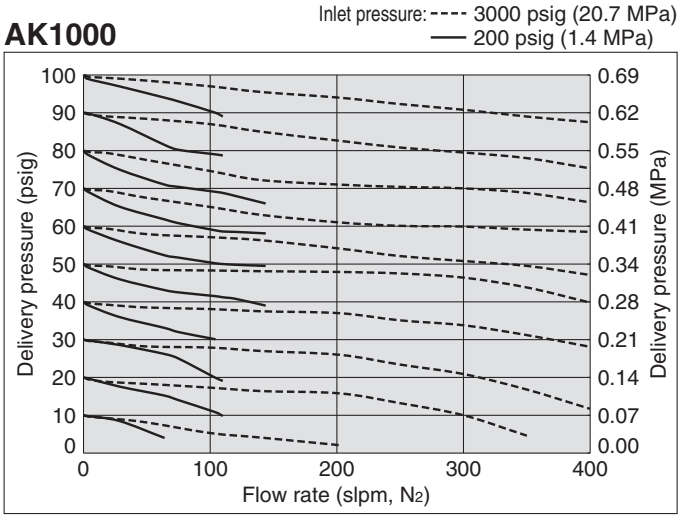
inch (mm)

AK1000

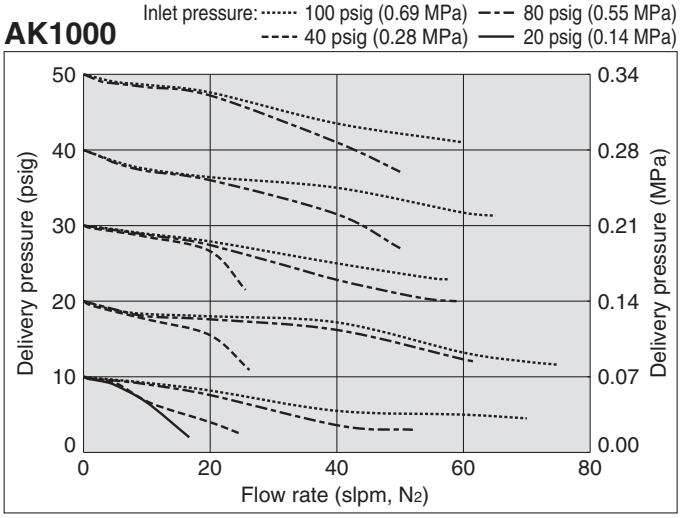


Flow Characteristics

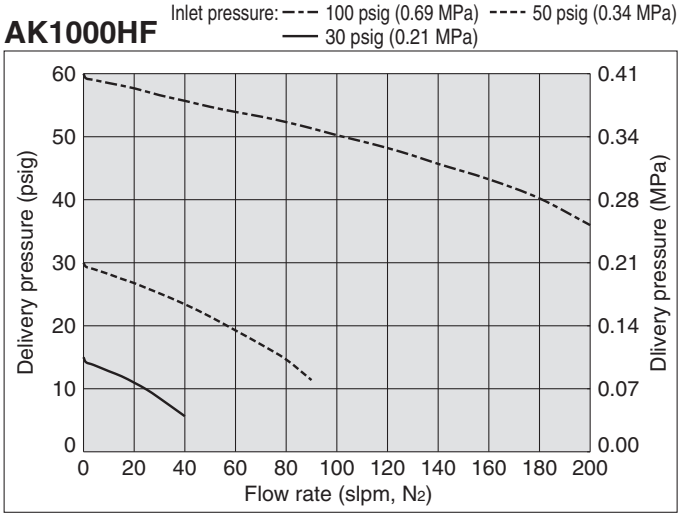
AK1000



AK1000



AK1000HF



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Single Stage Regulator for General Applications | Low flow (Tied-diaphragm)

Series AK1500

- **High inlet pressure type: Max. 3500 psig (24.1 MPa)**
- **Flow capacity: to 30 slpm**
- **Body material: Stainless steel and Brass available**
- **Hastelloy internals available for corrosion resistance**
- **Tied-diaphragm design**

How to Order

Port Number ① ② ③ ④ ⑤

AK15 [02] [S] [4PL] [4] [4] [0] [0] [ ] [ ] [ ] [ ]

Delivery pressure

Code	Delivery pressure
02	1 to 30 psig (0.007 to 0.2 MPa)
06	2 to 60 psig (0.014 to 0.4 MPa)
10	2 to 100 psig (0.014 to 0.7 MPa)
15	5 to 150 psig (0.034 to 1.0 MPa)

Material

Code	Body	Poppet	Diaphragm
B	Brass	316 SS	316 SS
S	316 SS		
SH		Hastelloy® C-22	Hastelloy® C-22

Ports

Code	Ports	Material B	Material S, SH
2P	Refer to the following porting configurations.		●
3P			●
4PL		●	●
5PC		●	●

Connections (Inlet①, Outlet②)

Code	Connections
4	NPT 1/4 inch
4T	1/4 inch compression
6T	3/8 inch compression

Gauge port (Extra bottom outlet③, Inlet④, Outlet⑤)

Code	Pressure gauge ∗1) psig/bar unit	Pressure gauge ∗1) MPa unit
No code	No gauge port	
0	No pressure gauge (Connections: 1/4 inch NPT)	
V3	-30 in.Hg to 30 psig	-0.1 to 0.2 MPa
1	-30 in.Hg to 100 psig	-0.1 to 0.7 MPa
2	0 to 200 psig	0 to 1.5 MPa
10	0 to 1000 psig	0 to 7 MPa
40	0 to 4000 psig	0 to 28 MPa

∗1) Other range available. Refer to gauge guide (P.94,95).

Bonnet option

Code	Bonnet
No code	Standard
P	Panel installation ∗4)

∗4) Panel mounting hole: dia. 1.42 inch (36.1 mm).

Seat material

Code	Material
No code	PCTFE (Standard)
VS	Vespel® ∗3)
PK	PEEK

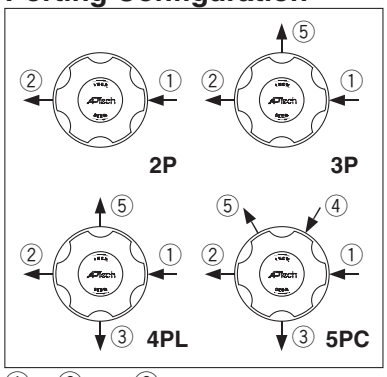
∗3) Not available with SH material.

Pressure gauge unit ∗2)

Code	Unit
No code	psig/bar
MPA	MPa

∗2) Pressure gauge unit MPa or psig/bar selectable. However under Japanese regulation, only MPa is available in Japan.

Porting Configuration



①IN ②OUT ③Extra bottom port (Outlet) ④Gauge port (Inlet) ⑤Gauge port (Outlet)

Sample Order Number

	Port ①	②	③	④	⑤		
AK1510S	2P	4	4				
	3P	4	4			1	MPA
	4PL	4	4	0		1	MPA
	5PC	4	4	0	40	1	MPA

Specifications

Operating Parameters	AK1502	AK1506	AK1510	AK1515
Delivery pressure	1 to 30 psig (0.007 to 0.2 MPa)	2 to 60 psig (0.014 to 0.4 MPa)	2 to 100 psig (0.014 to 0.7 MPa)	5 to 150 psig (0.034 to 1.0 MPa)
Gas	Select compatible materials of construction for the gas			
Source pressure	Vacuum to 3500 psig (24.1 MPa)			
Proof pressure (inlet)	4500 psig (30.7 MPa)			
Burst pressure	10000 psig (69 MPa)			
Ambient and operating temperature	-40 to 71 °C (No freezing) ∗1)			
Cv	0.09			
Leak rate	1 x 10^{-10} Pa·m^3/sec			
Connections	NPT female, Compression			
Supply pressure effect	0.41 psig (0.0028 MPa) rise in delivery pressure per 100 psig (0.7 MPa) source pressure drop			
Installation	Bottom mount (Option: panel mount)			
Internal volume	0.49 in^3 (8 cm^3)			
Mass	1.18 kg ∗2)			

∗1) -10 to 90 °C for Vespel® and PEEK seat. Optional ambient and operating temperature range available. Please contact SMC.
∗2) Mass, including individual boxed weight, may vary depending on connections or options.

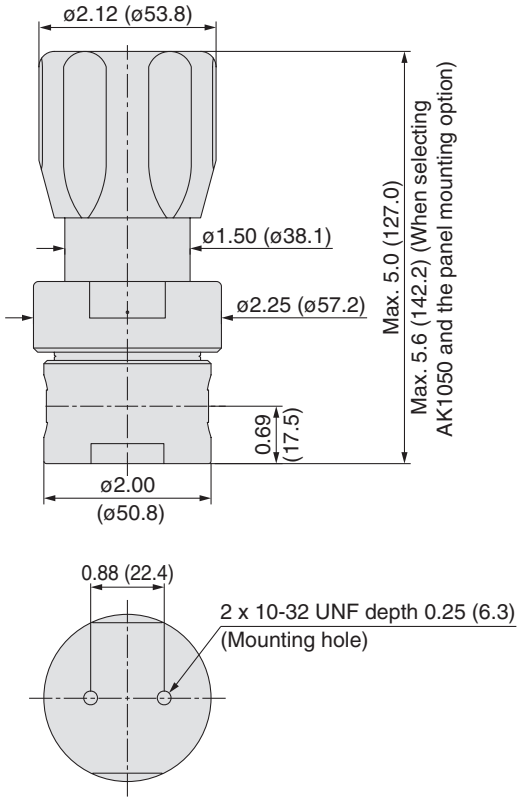
Wetted Parts Material

Wetted Parts	B	S	SH
Body	Brass	316 SS	
Poppet	316 SS		Hastelloy® C-22
Diaphragm	316 SS		Hastelloy® C-22
Seat	PCTFE (Option: Vespel®, PEEK)		PCTFE (Option: PEEK)

Dimensions

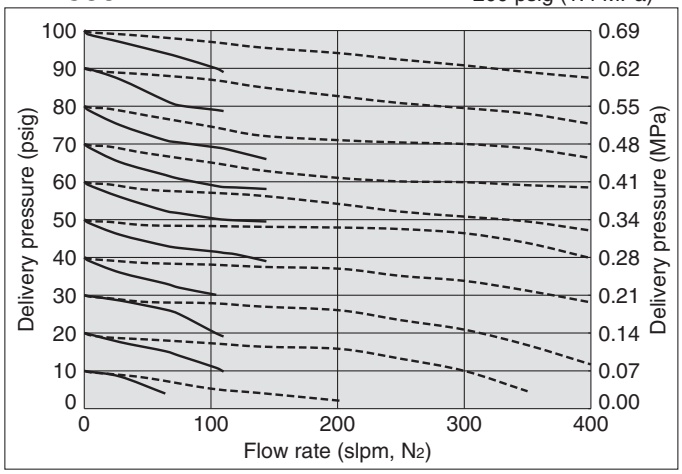
inch (mm)

AK1500

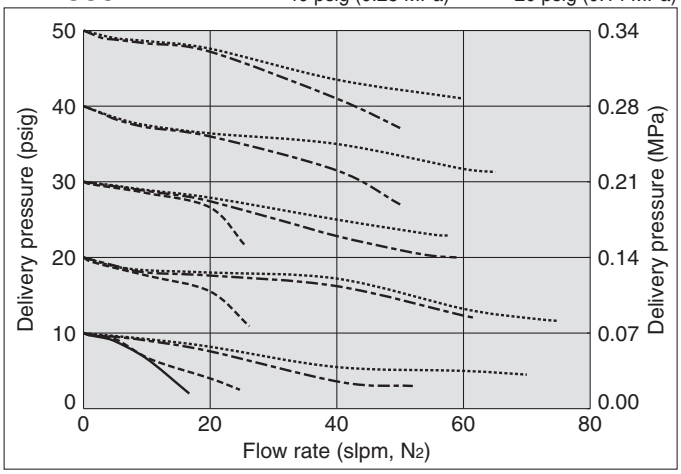


Flow Characteristics

AK1500



AK1500



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Single Stage Regulator for General Applications | Intermediate flow (Tied-diaphragm)

Series AK1400T

- **High inlet pressure type** Standard: Max. 2300 psig (15.9 MPa) HR (option): Max. 3000 psig (20.7MPa)
- **Flow capacity to 400 slpm**
- **Body material: Stainless steel and Brass available**
- **Hastelloy internals standard**
- **Sub-atmospheric pressure delivery option**
- **Tied-diaphragm design**

How to Order

AK14 02 T S □ 4PL 6 6 0 0 □ □ □ □ □

Port Number: ① ② ③ ④ ⑤

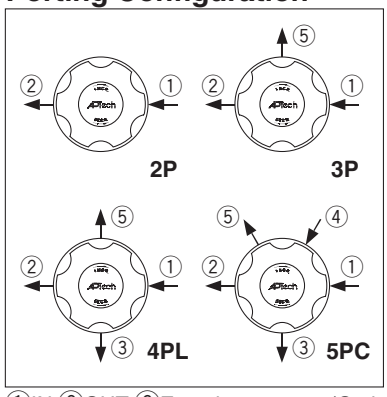
Delivery pressure

Code	Delivery pressure
02	1 to 30 psig (0.007 to 0.2 MPa)
	Sub-atmospheric (A): 100 mm Hg absolute to 30 psig (-88kPa to 0.2 MPa)
06	1 to 60 psig (0.007 to 0.4 MPa)
10	2 to 100 psig (0.014 to 0.7 MPa)
15	5 to 150 psig (0.034 to 1.0 MPa)

Material

Code	Body	Poppet	Diaphragm	Nozzle
B	Brass	Hastelloy® C-22	Hastelloy® C-22	316 SS
S	316 SS			
SH				Hastelloy® C-22

Porting Configuration



①IN ②OUT ③Extra bottom port (Outlet)
④Gauge port (Inlet) ⑤Gauge port (Outlet)

Connections(Inlet①, Outlet②)

Code	Connections
4	NPT 1/4 inch
6	NPT 3/8 inch
8	NPT 1/2 inch
4T	1/4 inch compression
6T	3/8 inch compression
8T	1/2 inch compression

Ports

Code	Ports	Material B	Material S, SH
2P	Refer to the following porting configurations.		●
3P			●
4PL		●	●
5PC		●	●

Range options *1)

Code	Specification
No code	Standard
A	Sub-atmospheric

*1) Only available with AK1402T.

Gauge port (Extra bottom outlet③, Inlet④, Outlet⑤)

Code	Pressure gauge *2) psig/bar unit	Pressure gauge *2) MPa unit
No code	No gauge port	
0	No pressure gauge (Connections: 1/4 inch NPT)	
V3	-30 in.Hg to 30 psig	-0.1 to 0.2 MPa
1	-30 in.Hg to 100 psig	-0.1 to 0.7 MPa
2	0 to 200 psig	0 to 1.5 MPa
10	0 to 1000 psig	0 to 7 MPa
40	0 to 4000 psig	0 to 28 MPa

*2) Other range available. Refer to gauge guide (P.94,95).

Bonnet option

Code	Bonnet
No code	Standard
P	Panel installation*6)
BP	Bonnet port (NPT 1/8 inch)

*6) Panel mounting hole: dia. 1.56 inch (39.6 mm).

Option

Code	Specification
No code	Standard
HR	High inlet pressure (Max. inlet pressure 3000 psig (20.7 MPa)) *5)

*5) Not available with AK1402T and AK1406T.

Seat material

Code	Material
No code	PCTFE (Standard)
VS	Vespel® *4)

*4) Not available with SH material.

Pressure gauge unit *3)

Code	Unit
No code	psig/bar
MPA	MPa

*3) Pressure gauge unit MPa or psig/bar selectable. However under Japanese regulation, only MPa is available in Japan.

Sample Order Number

	Port	①	②	③	④	⑤	
AK1410TS	2P	6	6				
	3P	6	6			1	MPA
	4PL	6	6	0		1	MPA
	5PC	6	6	0	40	1	MPA

Specifications

Operating Parameters	AK1402T□A	AK1402T	AK1406T	AK1410T	AK1415T
Delivery pressure	100 mm Hg absolute to 30 psig (-88 kPa to 0.2 MPa)	1 to 30 psig (0.007 to 0.2 MPa)	1 to 60 psig (0.007 to 0.4 MPa)	2 to 100 psig (0.014 to 0.7 MPa)	5 to 150 psig (0.034 to 1.0 MPa) (Source pressure 1000 psig or less) *1)
Gas	Select compatible materials of construction for the gas				
Source pressure	Vacuum to 300 psig (2.1 MPa)	Vacuum to 2300 psig (15.9 MPa)			
Proof pressure (Inlet)	4000 psig (27.6 MPa)				
Burst pressure	8000 psig (55.2 MPa)				
Ambient and operating temperature	-40 to 71 °C (No freezing) *2)				
Cv	0.45				
Leak rate	1 x 10^{-10} Pa·m^3/sec				
Connections	NPT female, Compression				
Supply pressure effect	1.6 psig (0.011 MPa) rise in delivery pressure per 100 psig (0.7 MPa) source pressure drop				
Installation	Bottom mount (Option: panel mount)				
Internal volume	0.65 in^3 (10.6 cm^3)				
Mass	2.04 kg *3)				

*1) Source pressure above 1000 psig (6.9 MPa) decreases maximum delivery pressure to less than 150 psig (1 MPa) due to supply pressure effect. When the source pressure is 2300 psig (15.9 MPa), achievable delivery pressure is around 129 psig (0.89 MPa).

*2) -10 to 90 °C for Vespel® seat.

*3) Mass, including individual boxed weight, may vary depending on connections or options.

Option

High inlet pressure

Changes from the standard type are:

Option	Other Parameters	AK1410T	AK1415T
HR	**Source pressure**	Vacuum to 3000 psig (20.7 MPa)	
	Proof pressure (Inlet)	4500 psig (31 MPa)	
	Burst pressure	9000 psig (62 MPa)	

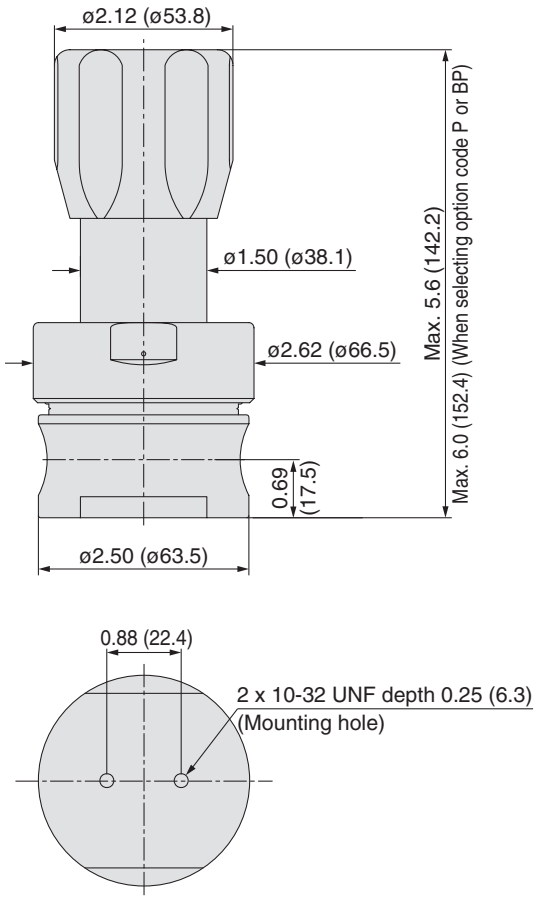
Wetted Parts Material

Wetted Parts	B	S	SH
Body	Brass	316 SS	
Poppet	Hastelloy® C-22		
Diaphragm	Hastelloy® C-22		
Nozzle	316 SS		Hastelloy® C-22
Seat	PCTFE (Option: Vespel®)		PCTFE

Dimensions

inch (mm)

AK1400T

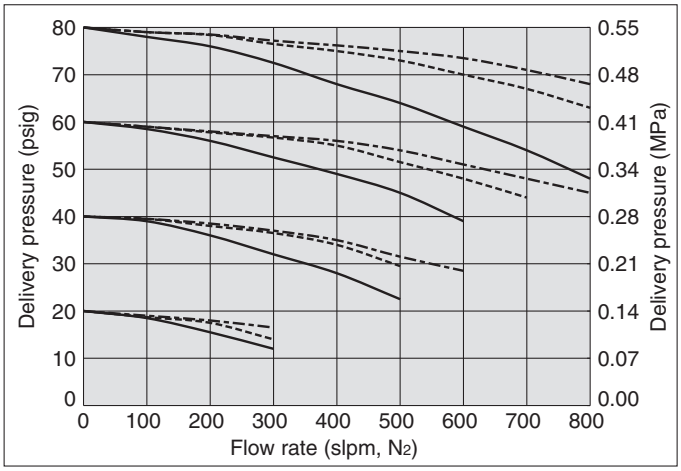


Flow Characteristics

Inlet pressure: 2000 psig (13.8 MPa) 600 psig (4.1 MPa) 200 psig (1.4 MPa)

AK1400T

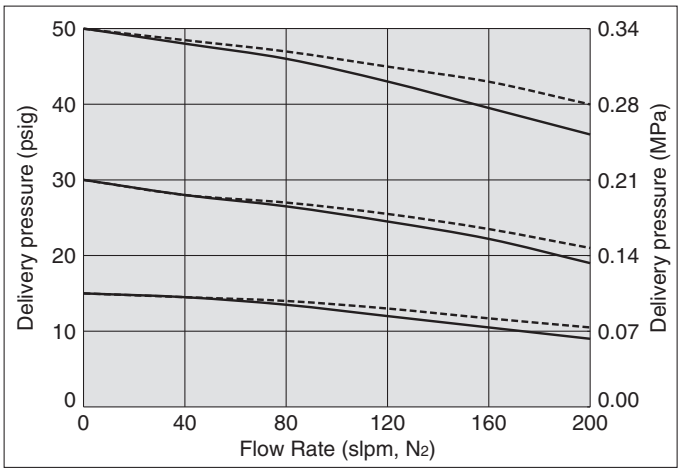
1/2 inch Connection *)



Inlet pressure: 80 psig (0.55 MPa) 60 psig (0.41 MPa)

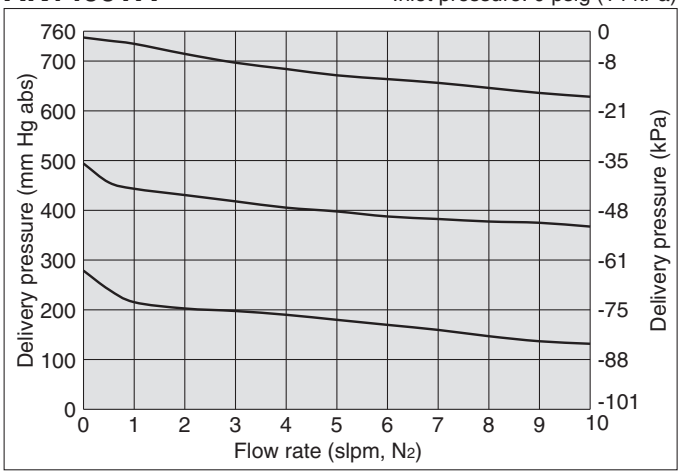
AK1400T

1/2 inch Connection *)



AK1400TA

Inlet pressure: 0 psig (14 kPa)



*) If connection size differs, flow characteristics also differ.

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Single Stage Regulator for General Applications | High flow

Series AK1300

- **Flow capacity to 1000 slpm**
- **Body material: Stainless steel and Brass available**
- **Inlet pressure: Max. 300 psig (2.1 MPa)**

How to Order

Port Number ① ② ③ ④

AK13 [02] [S] [4PL] [8] [8] [0] [0] [ ] [ ] [ ]

Delivery pressure

Code	Delivery pressure
02	1 to 30 psig (0.007 to 0.2 MPa)
06	2 to 60 psig (0.014 to 0.4 MPa)
10	2 to 100 psig (0.014 to 0.7 MPa)
15	5 to 150 psig (0.034 to 1.0 MPa)

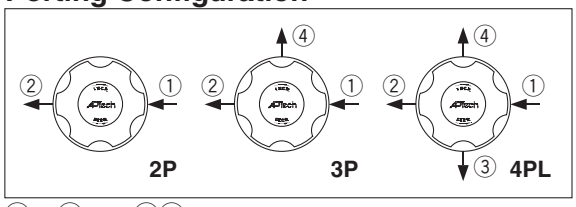
Material

Code	Body	Poppet	Diaphragm
B	Brass	316 SS	Hastelloy® C-22
S	316 SS		

Ports

Code	Ports	Material B	Material S, SH
2P	Refer to the following porting configurations.		●
3P			●
4PL		●	●

Porting Configuration



①IN ②OUT ③④Gauge port (Outlet)

Connections (Inlet①, Outlet②)

Code	Connections
4	NPT 1/4 inch
6	NPT 3/8 inch
8	NPT 1/2 inch
4T	1/4 inch compression
6T	3/8 inch compression
8T	1/2 inch compression

Gauge port (Outlet③, ④)

Code	Pressure gauge ∗1) psig/bar unit	Pressure gauge ∗1) MPa unit
No code	No gauge port	
0	No pressure gauge (Connections: 1/4 inch NPT)	
V3	-30 in.Hg to 30 psig	-0.1 to 0.2 MPa
1	-30 in.Hg to 100 psig	-0.1 to 0.7 MPa
2	0 to 200 psig	0 to 1.5 MPa

∗1) Other range available. Refer to gauge guide (P.94,95).

Sample Order Number

	Port	①	②	③	④	
AK1302S	2P	6	6			
	3P	6	6		V3	MPA
	4PL	6	6	0	V3	MPA

Bonnet option

Code	Bonnet
No code	Standard
P	Panel installation∗4)
BP	Bonnet port (NPT 1/8 inch)

∗4) Panel mounting hole: dia. 1.56 inch (39.6 mm).

Seat material

Code	Material
No code	PCTFE (Standard)
TF	PTFE ∗3)

∗3) PTFE seats reduce seat abrasion for flow cycle application. Gas permeation is greater with PTFE than PCTFE.

Pressure gauge unit ∗2)

Code	Unit
No code	psig/bar
MPA	MPa

∗2) Pressure gauge unit MPa or psig/bar selectable. However under Japanese regulation, only MPa is available in Japan.

Specifications

Operating Parameters	AK1302	AK1306	AK1310	AK1315
Delivery pressure	1 to 30 psig (0.007 to 0.2 MPa)	2 to 60 psig (0.014 to 0.4 MPa)	2 to 100 psig (0.014 to 0.7 MPa)	5 to 150 psig (0.034 to 1.0 MPa)
Gas	Select compatible materials of construction for the gas			
Source pressure	Vacuum to 300 psig (2.1 MPa)			
Proof pressure (Inlet)	450 psig (3.1 MPa)			
Burst pressure	1200 psig (8.3 MPa)			
Ambient and operating temperature	-40 to 71 °C (No freezing)			
Cv	1.1			
Leak rate	1 x 10^{-10} Pa·m^3/sec			
Connections	NPT female, Compression			
Supply pressure effect	4.6 psig (0.031 MPa) rise in delivery pressure per 100 psig (0.7 MPa) source pressure drop			
Installation	Bottom mount (Option: panel mount)			
Internal volume	0.65 in^3 (10.6 cm^3)			
Mass	2.0 kg ∗			

∗ Mass, including individual boxed weight, may vary depending on connections or options.

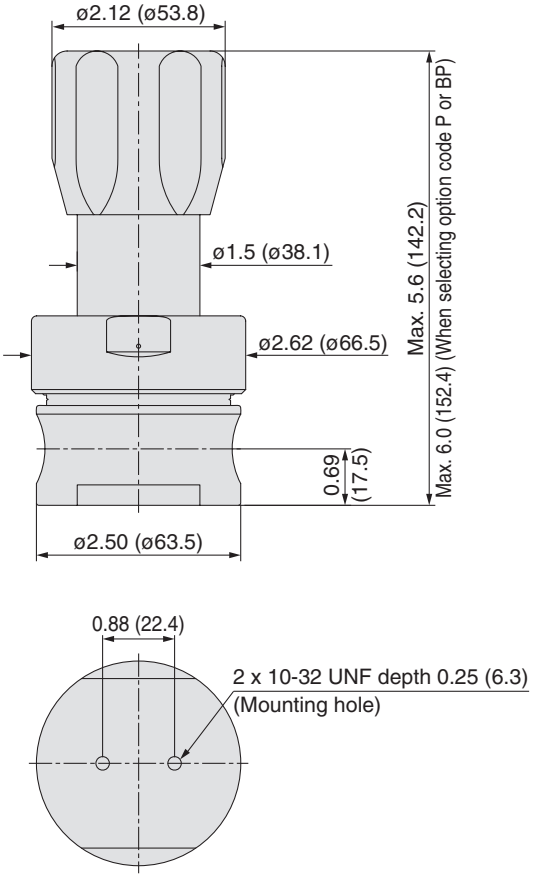
Wetted Parts Material

Wetted Parts	B	S
Body	Brass	316 SS
Poppet	316 SS	
Diaphragm	Hastelloy® C-22	
Seat	PCTFE (Option: PTFE)	

Dimensions

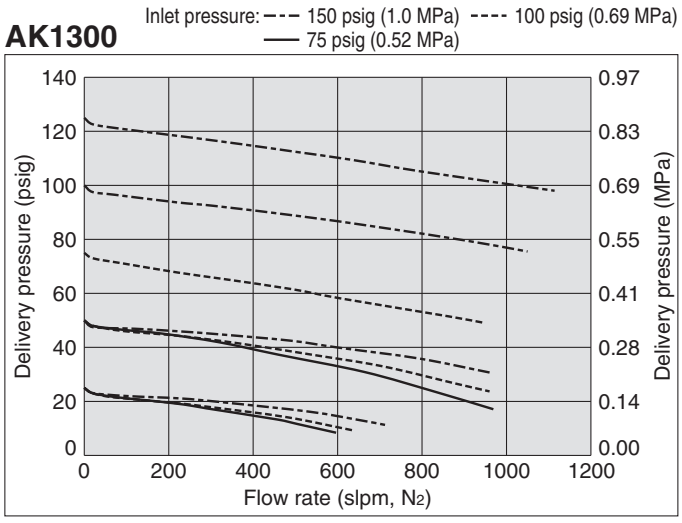
inch (mm)

AK1300

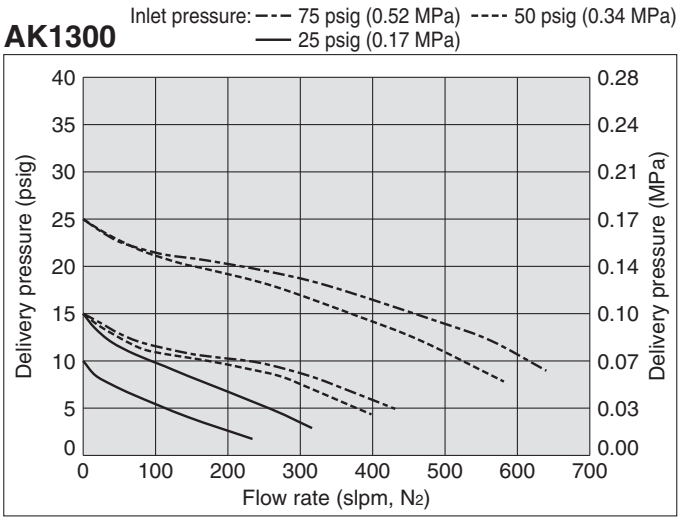


Flow Characteristics

AK1300



AK1300



Single Stage Regulator for General Applications | High flow (Tied-diaphragm)

Series AK1200

- **High inlet pressure type** Standard: Max. 1700 psig (11.7 MPa)
  HR (option): Max. 3000 psig (20.7 MPa)
- **Flow capacity** Standard: to 800 slpm
  HF (option): to 1000 slpm
  FC (Option): to 1500 slpm
- **Body material: Stainless steel and Brass available**
- **Hastelloy internals available for corrosion resistance**
- **Tied-diaphragm design**

How to Order

Port Number ① ② ③ ④ ⑤

AK12 | 02 | S | 4PL | 8 | 8 | 0 | 0 | | | | | |

Delivery pressure

Code	Delivery pressure
02	1 to 30 psig (0.007 to 0.2 MPa)
06	2 to 60 psig (0.014 to 0.4 MPa)
10	2 to 100 psig (0.014 to 0.7 MPa)
15	5 to 150 psig (0.034 to 1.0 MPa)
25	Preset to 250 psig (1.7 MPa)

Material

Code	Body	Poppet	Diaphragm
B	Brass	316 SS	Hastelloy® C-22
S	316 SS		
SH		Hastelloy® C-22	

Ports

Code	Ports	Material B	Material S, SH
2P	Refer to the following porting configurations.		●
3P			●
4PL		●	●
5PC		●	●

Connections (Inlet①, Outlet②)

Code	Connections
4	NPT 1/4 inch
6	NPT 3/8 inch
8	NPT 1/2 inch
4T	1/4 inch compression
6T	3/8 inch compression
8T	1/2 inch compression

Gauge port (Extra bottom outlet③, Inlet④, Outlet⑤)

Code	Pressure gauge ∗1) psig/bar unit	Pressure gauge ∗1) MPa unit
No code	No gauge port	
0	No pressure gauge (Connections: 1/4 inch NPT)	
V3	-30 in.Hg to 30 psig	-0.1 to 0.2 MPa
1	-30 in.Hg to 100 psig	-0.1 to 0.7 MPa
2	0 to 200 psig	0 to 1.5 MPa
10	0 to 1000 psig	0 to 7 MPa
40	0 to 4000 psig	0 to 28 MPa

∗1) Other range available. Refer to gauge guide (P.94,95).

Bonnet option

Code	Bonnet
No code	Standard
P	Panel installation ∗6)
BP	Bonnet port (NPT 1/8 inch)

∗6) Panel mounting hole: dia. 1.56 inch (39.6 mm).

Option

Code	Specification
No code	Standard (Cv: 0.65)
HF	High flow (Cv: 1.1)
FC	Force compensation(Cv: 0.65) ∗4) ∗5)
HR	High inlet pressure (Max. inlet pressure 3000 psig (20.7 MPa)) ∗4)

∗4) FC option is not available with AK1202, AK1206 and AK1225.
∗5) FC option is available with 1/2 inch NPT or 1/2 inch compression.

Seat material

Code	Material
No code	PCTFE (Standard)
VS	Vespel® ∗3)

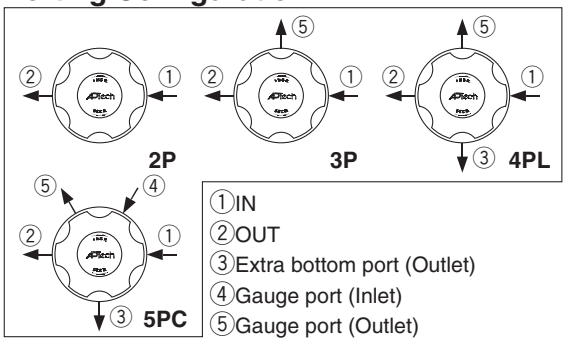
∗3) Not available with SH material.

Pressure gauge unit ∗2)

Code	Unit
No code	psig/bar
MPA	MPa

∗2) Pressure gauge unit MPa or psig/bar selectable. However under Japanese regulation, only MPa is available in Japan.

Porting Configuration



①IN
②OUT
③Extra bottom port (Outlet)
④Gauge port (Inlet)
⑤Gauge port (Outlet)

Sample Order Number

	Port ①	②	③	④	④		
AK1202S	2P	8	8				
	3P	8	8			V3	MPA
	4PL	8	8	0		V3	MPA
	5PC	8	8	0	40	V3	MPA

Specifications

Operating Parameters	AK1202	AK1206	AK1210	AK1215	AK1225
Delivery pressure	1 to 30 psig (0.007 to 0.2 MPa)	2 to 60 psig (0.014 to 0.4 MPa)	2 to 100 psig (0.014 to 0.7 MPa)	5 to 150 psig (0.034 to 1.0 MPa) (Source pressure 1000 psig or less) ∗1)	Preset to 250 psig (1.7 MPa) ∗2)
Gas	Select compatible materials of construction for the gas				
Source pressure	Vacuum to 1700 psig (11.7 MPa)				
Proof pressure (Inlet)	2550 psig (17.6 MPa)				
Burst pressure	9000 psig (62 MPa)				
Ambient and operating temperature	-40 to 71 °C (No freezing) ∗3)				
Cv	0.65				
Leak rate	1 x 10^{-10} Pa·m^3/sec				
Connections	NPT female, Compression				
Supply pressure effect	3.5 psig (0.024 MPa) rise in delivery pressure per 100 psig (0.7 MPa) source pressure drop				
Installation	Bottom mount (Option: panel mount)				
Internal volume	0.65 in^3 (10.6 cm^3)				
Mass	2.0 kg ∗4)				

∗1) Source pressure above 1000 psig (6.9 MPa) decreases maximum delivery pressure to less than 150 psig (1 MPa) due to supply pressure effect. When the source pressure is 1700 psig (11.7 MPa), achievable delivery pressure is around 125 psig (0.86 MPa) (HF and FC option 120 psig (0.83 MPa)).
∗2) 250 psig outlet pressure preset at 800 psig (5.5MPa) inlet pressure. Custom inlet/outlet pressure settings available. Please contact SMC.
∗3) -10 to 90 °C for Vespel® seat. Optional ambient and operating temperature range available. Please contact SMC.
∗4) Mass, including individual boxed weight, may vary depending on connections or options.

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Options

1.High flow Higher flow capacity with internal changes only, no change in external dimensions. Changes from the standard type are:

Option	Other Parameters	AK1202	AK1206	AK1210	AK1215	AK1225
HF	Cv	1.1				
	Supply pressure effect	4.2 psig (0.029 MPa) rise in delivery pressure per 100 psig (0.7 MPa) source pressure drop				

2. Force compensation Force compensation feature added to HF option and has higher flow capacity than HF option. Changes from the standard type are:

Option	Other Parameters	AK1210	AK1215
FC	Source pressure	Vacuum to 300 psig (2.1 MPa)	
	Cv	0.65	
	Supply pressure effect	4.2 psig (0.029 MPa) rise in delivery pressure per 100 psig (0.7 MPa) source pressure drop	
	Connections	NPT 1/2 inch, 1/2 inch compression	

3. High inlet pressure Changes from the standard type are:

Option	Other Parameters	AK1210	AK1215
HR	Source pressure	Vacuum to 3000 psig (20.7 MPa)	
	Proof pressure (Inlet)	4500 psig (31 MPa)	
	Burst pressure	9000 psig (62 MPa)	

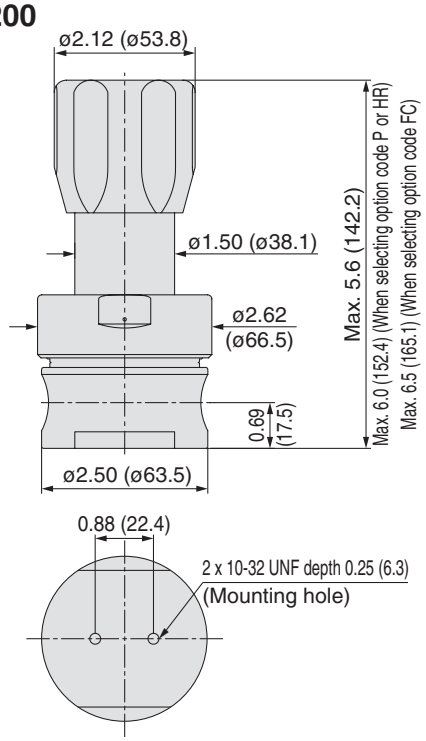
Wetted Parts Material

Wetted Parts	B	S	SH
Body	Brass	316 SS	
Poppet	316 SS		Hastelloy® C-22
Diaphragm	Hastelloy® C-22		
Seat	PCTFE (Option: Vespel®)		PCTFE

Dimensions

inch (mm)

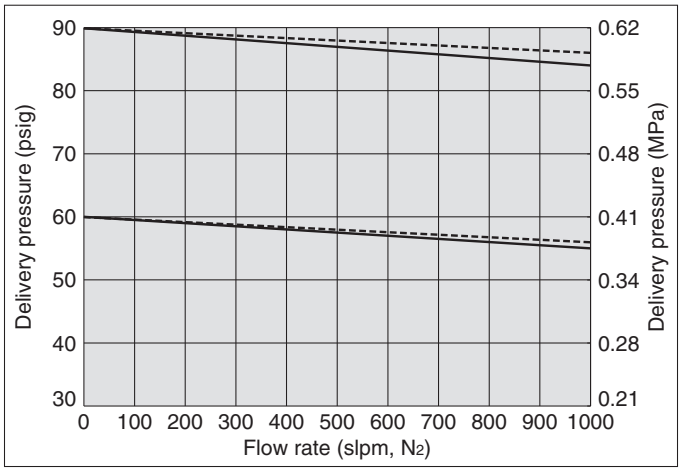
AK1200



Flow Characteristics

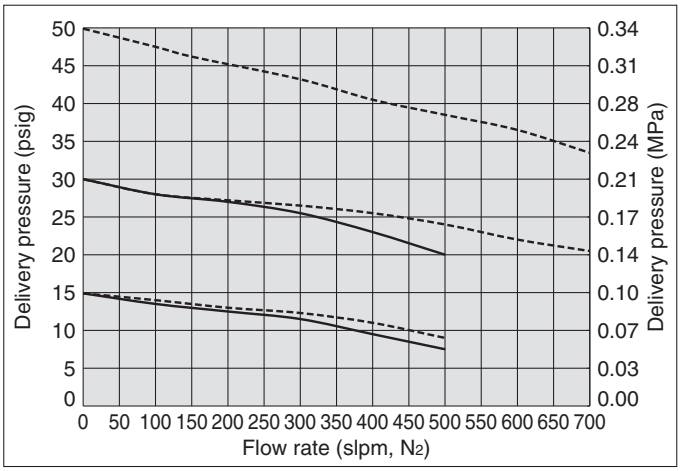
AK1200

Inlet pressure: ---- 1700 psig (11.7 MPa) —— 500 to 1000 psig (3.4 to 6.9 MPa)
1/2 inch connections *)



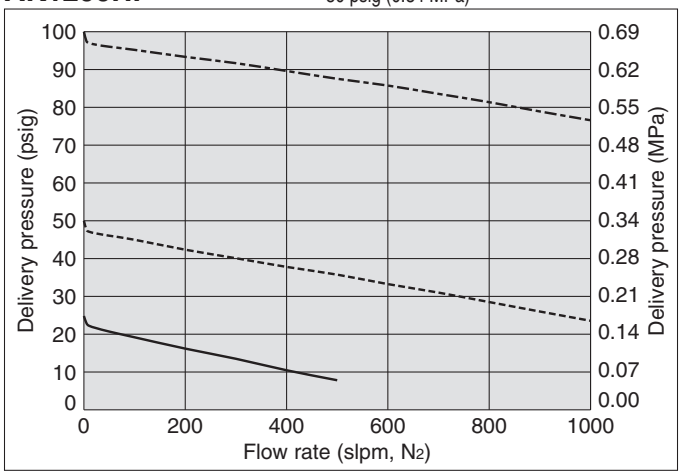
AK1200

Inlet pressure: ---- 80 psig (0.55 MPa) —— 60 psig (0.41 MPa)
1/2 inch connections *)



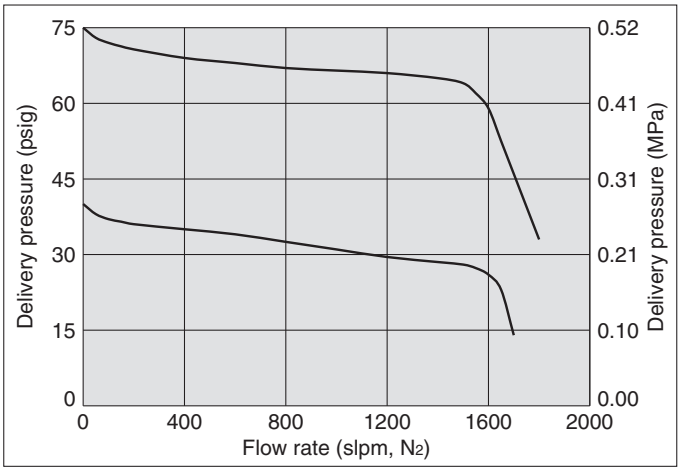
AK1200HF

Inlet pressure: ---- 150 psig (1.0 MPa) ---- 100 psig (0.69 MPa)
—— 50 psig (0.34 MPa)



AK1200FC

Inlet pressure: 150 psig (1.0 MPa)
3/4 inch connections *)



*) If connection size differs, flow characteristics also differ.

Single Stage Regulator for General Applications | High flow (Tied-diaphragm)

Series AK9200

- 3/4 inch port size
- Inlet pressure : Max. 300 psig (2.1 MPa)
- Flow capacity: to 2000 slpm
- Body material: 316 SS

How to Order

Port Number ① ② ③ ④

AK92 [02] S [4PL] [12] [12] [0] [0] [ ] [ ]

Delivery pressure

Code	Delivery pressure
02	1 to 30 psig (0.007 to 0.2 MPa)
06	2 to 60 psig (0.014 to 0.4 MPa)
10	2 to 100 psig (0.014 to 0.7 MPa)
15	5 to 150 psig (0.034 to 1.0 MPa)

Material

Code	Body	Poppet	Diaphragm
S	316 SS	316 SS	Hastelloy® C-22

Ports

Code	Ports
4PL	4 ports

Connections (Inlet①, Outlet②)

Code	Connections
12	NPT 3/4 inch

Gauge port (Outlet③, ④)

Code	Pressure gauge ∗1)	
	psig/bar unit	MPa unit
0	No pressure gauge (Connections: 1/4 inch NPT)	
V3	-30 in.Hg to 30 psig	-0.1 to 0.2 MPa
1	-30 in.Hg to 100 psig	-0.1 to 0.7 MPa
2	0 to 200 psig	0 to 1.5 MPa

∗1) Other range available. Refer to gauge guide (P.94, 95).

Bonnet option

Code	Bonnet
No code	Standard
P	Panel installation ∗3)
BP	Bonnet port (NPT 1/8 inch)

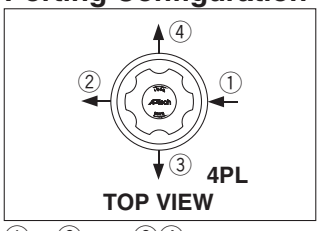
∗3) Panel mounting hole: dia.39.6 mm.

Pressure gauge unit ∗2)

Code	Unit
No code	psig/bar
MPA	MPa

∗2) Pressure gauge unit MPa or psig/bar selectable. However under Japanese regulation, only MPa is available in Japan.

Porting Configuration



①IN ②OUT ③④Gauge port (Outlet)

Specifications

Operating Parameters	AK9202	AK9206	AK9210	Ak9215
Delivery pressure	1 to 30 psig (0.007 to 0.2 MPa)	2 to 60 psig (0.014 to 0.4 MPa)	2 to 100 psig (0.014 to 0.7 MPa)	5 to 150 psig (0.034 to 1.0 MPa)
Gas	Select compatible materials of construction for the gas			
Source pressure	Vacuum to 300 psig (2.1 MPa)			
Proof pressure (Inlet)	450 psig (3.1 MPa)			
Burst pressure	1500 psig (10.3 MPa)			
Ambient and operating temperature	-40 to 71 °C (No freezing)			
Cv	1.6			
Leak rate	1 x 10^{-10} Pa·m^3/sec			
Connections	NPT 3/4 inch			
Supply pressure effect	7 psig (0.048 MPa) rise in delivery pressure per 100 psig (0.7 MPa) source pressure drop			
Installation	Bottom mount (Option: panel mount)			
Internal volume	2.2 in^3 (36 cm^3)			

Wetted Parts Material

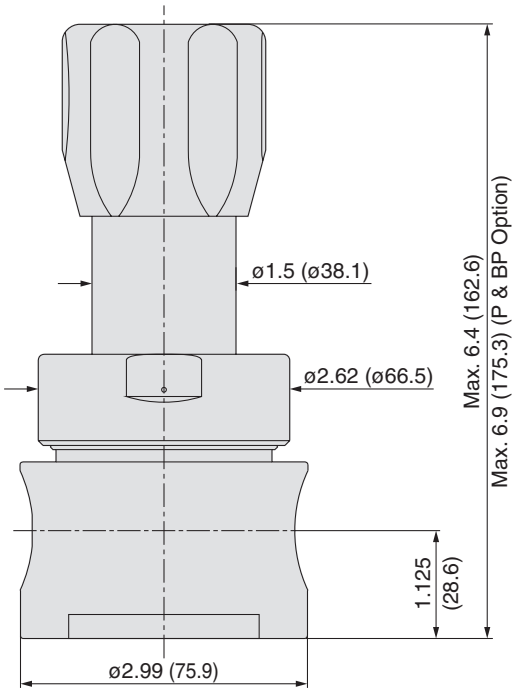
Wetted Parts	S
Body	316 SS
Nozzle	316 SS
Poppet	316 SS
Diaphragm	Hastelloy® C-22
Seat	PFA

SMC

Dimensions

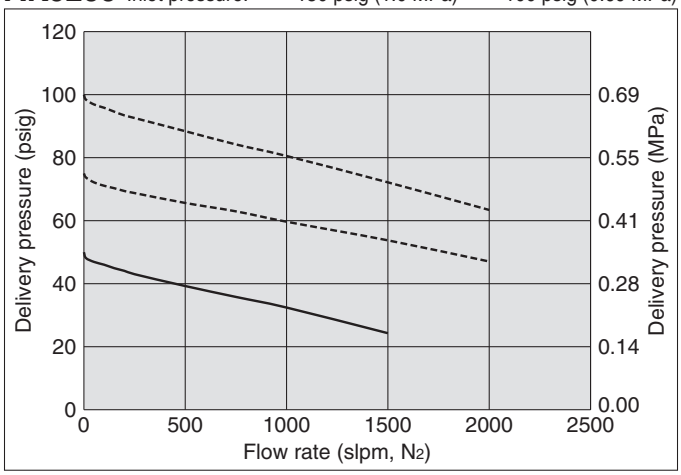
inch (mm)

AK9200



Flow Characteristics

AK9200 Inlet pressure: ---- 150 psig (1.0 MPa) —— 100 psig (0.69 MPa)



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Two Stage Regulator for General Applications | Low flow (Tied-diaphragm)

Series AK1700

- **High inlet pressure type: Max. 3500 psig (24.1 MPa)**
- **Flow capacity Standard: to 30 slpm**
- **Body material: Stainless steel and Brass available**
- **Hastelloy internals available for corrosion resistance**
- **Minimizes supply pressure effect by two stage regulation**
- **Tied-diaphragm design**

How to Order

Port Number ① ② ③ ④ ⑤

AK17 [02] [S] [5PC] [4] [4] [0] [0] [0] [ ] [ ] [ ] [ ]

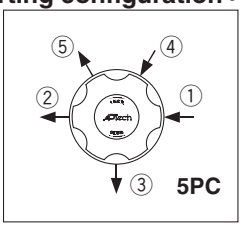
Delivery pressure

Code	Delivery pressure
02	1 to 30 psig (0.007 to 0.2 MPa)
06	2 to 60 psig (0.014 to 0.4 MPa)
10	2 to 100 psig (0.014 to 0.7 MPa)
20	5 to 200 psig (0.034 to 1.4 MPa)

Material

Code	Body	Poppet	Diaphragm
B	Brass	316 SS	316 SS
S	316 SS		
SH		Hastelloy® C-22	Hastelloy® C-22

Porting configuration



①IN ②OUT
③Extra bottom port (Outlet)
④Gauge port (Inlet)
⑤Gauge port (Outlet)

Connections (Inlet①, Outlet②)

Code	Connections
4	NPT 1/4 inch
4T	1/4 inch compression

Gauge port (Extra bottom outlet③, Inlet④, Outlet⑤)

Code	Pressure gauge ∗1)	
	psig/bar unit	MPa unit
No code	No gauge port	
0	No pressure gauge (Connections: 1/4 inch NPT)	
V3	-30 in.Hg to 30 psig	-0.1 to 0.2 MPa
1	-30 in.Hg to 100 psig	-0.1 to 0.7 MPa
2	0 to 200 psig	0 to 1.5 MPa
10	0 to 1000 psig	0 to 7 MPa
40	0 to 4000 psig	0 to 28 MPa

∗1) Other range available. Refer to gauge guide (P.94,95).

Bonnet option

Code	Bonnet
No code	Standard
P	Panel installation ∗4)

∗4) Panel mounting hole: dia. 1.42 inch (36.1 mm).

Poppet feature option

Code	Feature
No code	Standard (First and second stage tied diaphragm)
NT	First stage tied, second stage free poppet

Seat material

Code	Material
No code	PCTFE (Standard)
VS	Vespel® ∗3)
PK	PEEK

∗3) Not available with SH material.

Pressure gauge unit ∗2)

Code	Unit
No code	psig/bar
MPA	MPa

∗2) Pressure gauge unit MPa or psig/bar selectable. However under Japanese regulation, only MPa is available in Japan.

Specifications

Operating Parameters	AK1702	AK1706	AK1710	AK1720
Delivery pressure	1 to 30 psig (0.007 to 0.2 MPa)	2 to 60 psig (0.014 to 0.4 MPa)	2 to 100 psig (0.014 to 0.7 MPa)	5 to 200 psig (0.034 to 1.4 MPa)
Gas	Select compatible materials of construction for the gas			
Source pressure	Vacuum to 3500 psig (24.1 MPa)			
First stage pressure	175 psig (1.2 MPa)			
Proof pressure (Inlet)	4500 psig (30.7 MPa)			
Burst pressure	8000 psig (55.2 MPa)			
Ambient and operating temperature	-40 to 71 °C (No freezing) ∗1)			
Cv	0.05			
Leak rate	1 x 10^{-10} Pa·m^3/sec			
Connections	NPT female, Compression			
Supply pressure effect	0.05 psig (0.00035 MPa) rise in delivery pressure per 100 psig (0.7 MPa) source pressure drop			
Installation	Option: panel mount			
Internal volume	0.9 in^3 (15 cm^3)			
Mass	1.95 kg ∗2)			

∗1) -10 to 90 °C for Vespel® and PEEK seat. Optional ambient and operating temperature range available. Please contact SMC.
∗2) Mass, including individual boxed weight, may vary depending on connections or options.

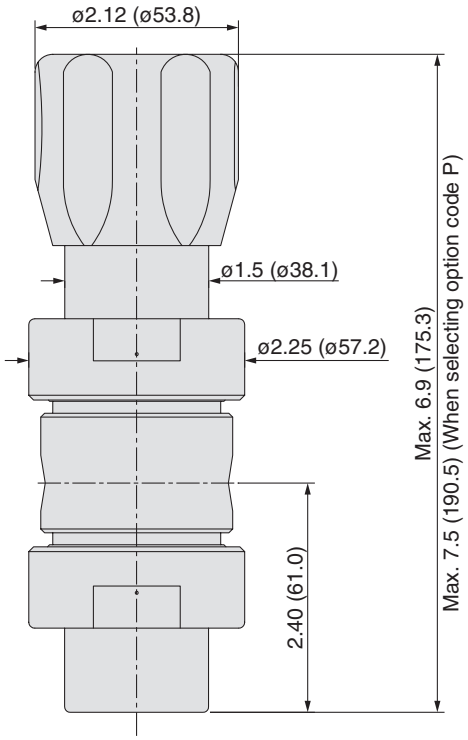
Wetted Parts Material

Wetted Parts	B	S	SH
Body	Brass	316 SS	
Poppet	316 SS		Hastelloy® C-22
Diaphragm	316 SS		Hastelloy® C-22
Seat	PCTFE (Option: Vespel®, PEEK)		PCTFE (Option: PEEK)

Dimensions

inch (mm)

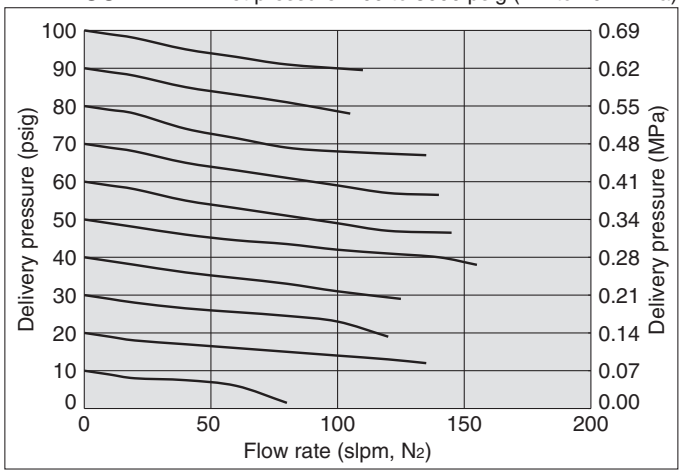
AK1700



Flow Characteristics

AK1700

Inlet pressure: 200 to 3000 psig (1.4 to 20.7 MPa)



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