













Regulator AP Series

● Standard ○ Selectable by model or option
 △ May be selected for source applications of inert gases, though tied diaphragm is recommended





Series	Application		Construction		Material		Max. inlet pressure		Delivery pressure			Flow, N ₂ ^{*2} slpm	Connection size [inch]	Connection type		Page			
	Distribution (Point of use)	Source (Cylinder)	Tied diaphragm	Springless	Body*1	Ni-Cr-Mo alloy internals	psig	MPa	psig	MPa	Sub-atmospheric (Absolute)			Connection	Fitting				
Single Stage (Compact)	AP500		●				316L VAR	○	● 150 ○ 3000	● 1.0 ○ 20.7		100 mmHg abs. to 10 psig 0.5 to 10 0.5 to 30 1 to 60 1 to 100 2 to 150	-88 kPa to 0.07 MPa 0.0034 to 0.07 0.0034 to 0.2 0.007 to 0.4 0.007 to 0.7 0.014 to 1.0	○	● 15 ○ 30 (HF opt.)	1/4	Welded	● Face seal ○ Tube weld	41
			●	△			316L VAR	○	300	2.1	3500	24.1	0.5 to 10 1 to 30 2 to 60 2 to 100 5 to 150 5 to 300	0.0034 to 0.07 0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0 0.034 to 2.1		● 30 ○ 120 (HF opt.)	1/4 3/8		
Single Stage	AP1100		●	●*3			316L VAR	○	300	2.1	100 mmHg abs. to 10 psig	-88 kPa to 0.07 MPa	●	0.5	1/4 3/8			45	
	AP1500		●	●	●		316L VAR	○	● 3500 ○ 4500	● 24.1 ○ 31	1 to 30 2 to 60 2 to 100 5 to 150	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0		● 30 ○ 120 (HF opt.)	1/4 3/8			47	
	AP1600		●				316L VAR	○	100 3500	0.7 24.1	1 to 10 1 to 30 2 to 60 2 to 100	0.007 to 0.07 0.007 to 0.2 0.014 to 0.4 0.014 to 0.7		100	1/4 3/8			49	
	AP1900		●	●	●		316L VAR	○	3500	24.1	1 to 10 1 to 30 2 to 60 2 to 100 5 to 150	0.007 to 0.07 0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0		● 100 ○ 150 (HF opt.)	1/4 3/8 1/2			51	
	AP1400T		●	●	●		316L VAR	●	300 2300 ● 2300 ○ 3000	2.1 15.9 ● 15.9 ○ 20.7	100 mmHg abs. to 30 psig 1 to 30 1 to 60 2 to 100 5 to 150	-88 kPa to 0.2 MPa 0.007 to 0.2 0.007 to 0.4 0.014 to 0.7 0.034 to 1.0	○	400	1/4 3/8 1/2	Welded	● Face seal ○ Tube weld	53	
	AP1200		●	●	●		316L VAR	○	1700 ● 1700 ○ 3000	11.7 ● 11.7 ○ 20.7	1 to 30 1 to 60 2 to 100 5 to 150	0.007 to 0.2 0.007 to 0.4 0.014 to 0.7 0.034 to 1.0		● 800 ○ 1000 (HF opt.) ○ 1500 (FC opt.)	1/4 3/8 1/2 3/4			55	
	AP1300		●				316L VAR	○	300	2.1	1 to 30 2 to 60 2 to 100 5 to 150	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0		1000	1/4 3/8 1/2 3/4			57	
	AP9000		●	●	●		316L	●	1700	11.7	5 to 100 Preset to 300	0.034 to 0.7 Preset to 2.1		2000	1/2 3/4 1			59	
	AP9100		●	●	●		316L	●	800	5.5	5 to 100	0.034 to 0.7		5000	1/2 3/4 1				
	AP9115		●	●	●		316L	●	250	1.7	5 to 150	0.034 to 1.0							
AP9000 VSHR		●	●	●		316L	●	● 3000	● 20.7	5 to 100 Preset to 300	0.034 to 0.7 Preset to 2.1		4000	1/2 3/4			61		
Two Stage	AP1700			●	●		316L VAR	○	● 3500 ○ 4500	● 24.1 ○ 31	1 to 30 2 to 60 2 to 100 5 to 200	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.035 to 1.4		● 15 ○ 120	1/4 3/8	Welded	● Face seal ○ Tube weld	63	
	AP2700			●	●		316L VAR	○	3500	24.1	1 to 30 2 to 60 2 to 100 3 to 120	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.021 to 0.8		150	1/4 3/8			65	

*1 316L VAR: 316L SS secondary remelt, 316L: 316L SS
 *2 At 150 psig (1.0 MPa) inlet pressure. Figure varies depending on gas and operating pressures.
 *3 For low vapor pressure gases

Recommendations
Regulators
AP
SL
AZ
AK
BP
Diaphragm Valves
AP
AZ
AK
Check Valves
Vacuum Generators
Flow Switches
Technical Data/ Glossary of Terms
Precautions

Regulator SL Series








● Standard ○ Selectable by model or option
 △ May be selected for source applications of inert gases, though tied diaphragm is recommended

Series	Application		Construction		Material		Max. inlet pressure		Delivery pressure			Flow, N ₂ ^{*2} slpm	Connection size [inch]	Connection type		Page		
	Distribution (Point of use)	Source (Cylinder)	Tied diaphragm	Springless	Body* ¹	Ni-Cr-Mo alloy internals	psig	MPa	psig	MPa	Sub-atmospheric (Absolute)			Connection	Fitting			
Single Stage (Compact)	SL5200		●		●	●	316L VAR	○	150	1.0	100 mmHg abs. to 10 psig	-88 kPa to 0.07 MPa	○	● 30 ○ 130 (HF opt.)	1/4 3/8	Welded	● Face seal ○ Tube weld	77
											0.5 to 10 0.5 to 30 1 to 60 1 to 100	0.0034 to 0.07 0.0034 to 0.2 0.007 to 0.4 0.007 to 0.7						
Single Stage	SL5500		●	●	●	●	316L VAR	○	3500	24.1	100 mmHg abs. to 30 psig	-88 kPa to 0.2 MPa	○	30	1/4 3/8	Welded	● Face seal ○ Tube weld	79
	SL5400		●	●	●	●	316L VAR	○	1000	6.9	1 to 30 1 to 60 2 to 100	0.007 to 0.2 0.007 to 0.4 0.014 to 0.7		120	1/4 3/8 1/2			81
	SL5800		●		●	●	316L VAR		300	2.1	1 to 30 1 to 60 2 to 100	0.007 to 0.2 0.007 to 0.4 0.014 to 0.7		200	1/4 3/8 1/2			83

*1 316L VAR: 316L SS secondary remelt, 316L: 316L SS
 *2 At 150 psig (1.0 MPa) inlet pressure. Figure varies depending on gas and operating pressures.

Regulator AZ Series











● Standard ○ Selectable by model or option
 △ May be selected for source applications of inert gases, though tied diaphragm is recommended

Series	Application		Construction		Material		Max. inlet pressure		Delivery pressure			Flow, N ₂ ^{*2} slpm	Connection size [inch]	Connection type		Page	
	Distribution (Point of use)	Source (Cylinder)	Tied diaphragm	Springless	Body* ¹	Ni-Cr-Mo alloy internals	psig	MPa	psig	MPa	Sub-atmospheric (Absolute)			Connection	Fitting		
Single Stage	AZ1000		●	△				300	2.1	1 to 10	0.007 to 0.07	○	● 30 ○ 120 (HF opt.)	1/4 3/8	Welded	● Face seal ○ Tube weld	85
								3500	24.1	1 to 30 2 to 60 2 to 100 5 to 150 5 to 300	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0 0.034 to 2.1						
	AZ1100		●	●* ³					300	2.1	100 mmHg abs. to 10 psig	-88 kPa to 0.07 MPa	●	0.5	1/4 3/8		87
	AZ1500		●	●	●				● 3500 ○ 4500	● 24.1 ○ 31	1 to 30 2 to 60 2 to 100 5 to 150	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0		● 30 ○ 120 (HF opt.)	1/4 3/8		89
	AZ1400T		●	●	●	316L	●	300	2.1	100 mmHg abs. to 30 psig	-88 kPa to 0.2 MPa	○	400	1/4 3/8 1/2	Welded	● Face seal ○ Tube weld	91
								2300	15.9	1 to 30 1 to 60	0.007 to 0.2 0.007 to 0.4						
	AZ1200		●	●	●				1700	11.7	1 to 30 2 to 60	0.007 to 0.2 0.014 to 0.4		● 800 ○ 1000 (HF opt.) ○ 1500 (FC opt.)	1/4 3/8 1/2		93
AZ1300		●						300	2.1	1 to 30 2 to 60 2 to 100 5 to 150	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0		1000	1/4 3/8 1/2		95	
AZ9200		●		●				300	2.1	1 to 30 2 to 60 2 to 100 5 to 150	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0		2000	3/4 1		97	

*1 316L: 316L SS, B: Brass
 *2 At 150 psig (1.0 MPa) inlet pressure. Figure varies depending on gas and operating pressures.
 *3 For low vapor pressure gases

Regulator AK Series

● Standard ○ Selectable by model or option
 △ May be selected for source applications of inert gases, though tied diaphragm is recommended

Series	Application Distribution (Point of use)	Source (Cylinder)	Construction		Material		Max. inlet pressure		Delivery pressure			Flow, N ₂ ^{*2} slpm	Connection size [inch]	Connection type		Page	
			Tied diaphragm	Springless	Body ^{*1}	Ni-Cr-Mo alloy internals	psig	MPa	psig	MPa	Sub-atmospheric (Absolute)			Connection	Fitting		
Single Stage (Compact)	AK100 	●	●			316L		300	2.1	100 mmHg abs. to 10 psig 0.5 to 10	-88 kPa to 0.07 MPa 0.003 to 0.07	○	30	1/8 1/4	Threaded	● NPT ○ Compression	107
								3000	20.7	1 to 30 2 to 100 5 to 150	0.007 to 0.2 0.014 to 0.7 0.02 to 1.0						
Single Stage	AK1000 	●	△			● 316L ○ B	○	300	2.1	0.5 to 10	0.0034 to 0.07	● 30 ○ 120 (HF opt.)	1/4 3/8	Threaded	● NPT ○ Compression	109	
								3500	24.1	1 to 30 2 to 60 2 to 100 5 to 150 5 to 200 5 to 300 10 to 500	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0 0.034 to 1.4 0.034 to 2.1 0.07 to 3.5						
	AK1000T 	●	△			316L	○	300	2.1	0.5 to 10	0.0034 to 0.07	120	1/4 3/8	Threaded	● NPT ○ Rc ○ Compression	111	
								3500	24.1	1 to 30 1 to 60 2 to 100 5 to 150	0.007 to 0.2 0.007 to 0.4 0.014 to 0.7 0.034 to 1.0						
	AK1100 	●	●*3					300	2.1	100 mmHg abs. to 10 psig	-88 kPa to 0.07 MPa	●	0.5	1/4 3/8	Threaded	● NPT ○ Compression	113
	AK1500 	●	●				○	● 3500 ○ 4500	● 24.1 ○ 31	1 to 30 2 to 60 2 to 100 5 to 150	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0	● 30 ○ 120 (HF opt.)	1/4 3/8	Threaded	● NPT ○ Compression	115	
	AK1400T 	●	●	●	●	● 316L ○ B	●	300	2.1	100 mmHg abs. to 30 psig	-88 kPa to 0.2 MPa	○	400	1/4 3/8 1/2	Threaded	● NPT ○ Compression	117
								2300	15.9	1 to 30 1 to 60	0.007 to 0.2 0.007 to 0.4						
	AK1200 	●	●	●	●		○	1700	11.7	1 to 30 2 to 60	0.007 to 0.2 0.014 to 0.4	● 800 ○ 1000 (HF opt.) ○ 1500 (FC opt.)	1/4 3/8 1/2	Threaded	● NPT ○ Compression	119	
								● 1700 ○ 3000	● 11.7 ○ 20.7	2 to 100 5 to 150	0.014 to 0.7 0.034 to 1.0						
AK1300 	●						300	2.1	1 to 30 2 to 60 2 to 100 5 to 150	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0	1000	1/4 3/8 1/2	Threaded	● NPT ○ Compression	121		
AK9200 	●		●			316L	300	2.1	1 to 30 2 to 60 2 to 100 5 to 150	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.0	2000	3/4	Threaded	● NPT ○ Compression	123		
Two Stage	AK1700 	●	●			● 316L ○ B	○	● 3500 ○ 4500	● 24.1 ○ 31	1 to 30 2 to 60 2 to 100 5 to 200	0.007 to 0.2 0.014 to 0.4 0.014 to 0.7 0.034 to 1.4	● 15 ○ 120 (HF opt.)	1/4 3/8	Threaded	● NPT ○ Compression	125	

*1 316L: 316L SS, B: Brass
 *2 At 150 psig (1.0 MPa) inlet pressure. Figure varies depending on gas and operating pressures.
 *3 For low vapor pressure gases

Recommendations
 Regulators
 AP
 SL
 AZ
 AK
 BP
 Diaphragm Valves
 AP
 AZ
 AK
 Check Valves
 Vacuum Generators
 Flow Switches
 Technical Data/
 Glossary of Terms
 Precautions

Air Operated Regulator AP/AZ/AK Series

● Standard ○ Selectable by model or option
 △ May be selected for source applications of inert gases, though tied diaphragm is recommended

Series	Application Distribution (Point of use) Source (Cylinder)	Construction		Material		Max. inlet pressure		Delivery pressure			Cv ^{*2}	Flow, N ₂ ^{*2} slpm	Connection size [inch]	Connection type		Page
		Tied diaphragm	Springless	Body ^{*1}	Ni-Cr-Mo alloy internals	psig	MPa	psig	MPa	Sub-atmospheric (Absolute)				Connection	Fitting	
AP10PA	●	△			○	3500	24.1	7 to 150	0.05 to 1.0		● 0.09 ○ 0.15	● 30 ○ 120 (HF opt.)	1/4 3/8	Welded	● Face seal ○ Tube weld	67
AP15PA		●	●		○	3500	24.1	7 to 150	0.05 to 1.0		0.09	30	1/4 3/8			69
AP14PAT	●	●	●		●	300	2.1	100 mmHg abs. to 30 psig	-88 kPa to 0.2 MPa	○	0.45	400	1/4 3/8 1/2			71
					● 2300 ○ 3000	● 15.9 ○ 20.7	7 to 150	0.05 to 1.0								
AP12PA	●	●	●		○	● 1700 ○ 3000	● 11.7 ○ 20.7	7 to 150	0.05 to 1.0		● 0.65 ○ 1.1	● 800 ○ 1000 (HF opt.)	1/4 3/8 1/2 3/4			73
AP90PA	●	●	●		●	1700	11.7	10 to 100	0.07 to 0.7		3.0	5000	1/2 3/4 1	Welded	● Face seal ○ Tube weld	75
AP91PA						800	5.5	10 to 150	0.07 to 1.0		4.0					
AZ10PA	●	△			○	3500	24.1	7 to 150	0.05 to 1.0		● 0.09 ○ 0.15	● 30 ○ 120 (HF opt.)	1/4 3/8	Welded	● Face seal ○ Tube weld	99
AZ15PA		●	●		○	3500	24.1	7 to 150	0.05 to 1.0		0.09	30	1/4 3/8			101
AZ14PAT	●	●	●		●	300	2.1	100 mmHg abs. to 30 psig	-88 kPa to 0.2 MPa	○	0.45	400	1/4 3/8 1/2			103
					● 2300 ○ 3000	● 15.9 ○ 20.7	7 to 150	0.05 to 1.0								
AZ12PA	●	●	●		○	● 1700 ○ 3000	● 11.7 ○ 20.7	7 to 150	0.05 to 1.0		● 0.65 ○ 1.1	● 800 ○ 1000 (HF opt.)	1/4 3/8 1/2			105
AK10PA	●	△			○	3500	24.1	7 to 150	0.05 to 1.0		● 0.09 ○ 0.15	● 30 ○ 120 (HF opt.)	1/4 3/8	Threaded	● NPT ○ Compression	127
AK15PA		●	●		○	3500	24.1	7 to 150	0.05 to 1.0		0.09	30	1/4 3/8			129
AK14PAT	●	●	●		●	300	2.1	100 mmHg abs. to 30 psig	-88 kPa to 0.2 MPa	○	0.45	400	1/4 3/8 1/2			131
					● 2300 ○ 3000	● 15.9 ○ 20.7	7 to 150	0.05 to 1.0								
AK12PA	●	●	●		○	● 1700 ○ 3000	● 11.7 ○ 20.7	7 to 150	0.05 to 1.0		● 0.65 ○ 1.1	● 800 ○ 1000 (HF opt.)	1/4 3/8 1/2			133

*1 316L VAR: 316L SS secondary remelt, 316L: 316L SS, B: Brass
 *2 At 150 psig (1.0 MPa) inlet pressure. Figure varies depending on gas and operating pressures.

Recommendations
Regulators
AP
SL
AZ
AK
BP
Diaphragm Valves
AK
AP
AZ
AK
Check Valves
AK
Vacuum Generators
AK
Flow Switches
AK
Technical Data/ Glossary of Terms
Precautions

Back Pressure Regulator BP Series

● Standard ○ Selectable by model or option

Series	Body material*1	Operating pressure		Connection size [inch]	Connection type		Page
		psig	MPa		Connection	Fitting	
BP1000	316L VAR	0.5 to 10 1 to 30 2 to 60 5 to 100 15 to 200 15 to 300	0.0034 to 0.07 0.007 to 0.2 0.014 to 0.4 0.034 to 0.7 0.1 to 1.4 0.1 to 2.1	1/4 3/8	Welded	● Face seal ○ Tube weld	135
	● 316 ○ B			1/4	Threaded	● NPT ○ Compression	137

*1 316L VAR: 316L SS secondary remelt, 316: 316 SS, B: Brass

