SINGLE-STAGE REGULATORS FOR CORROSIVE, HIGH PURITY GASES (MODEL APC)

The Model APC regulator is designed for use in applications requiring both corrosion and diffusion resistance. These regulators are specially suited for use in gas delivery systems requiring high leak integrity and minimal internal volume for maintaining guaranteed gas purity levels.

These single-stage regulators are recommended for use with gases where inlet pressure does not vary greatly (such as liquefied gases), or where periodic readjustment of delivery pressure setting does not present a problem.

APC Regulator

STANDARD FEATURES

- Type 316 Stainless Steel Bar Stock Construction provides maximum corrosion resistance.
- Metal to Metal Diaphragm Seal assures maximum diffusion resistance.
- High Purity Regulator Design permits vacuum purging of regulator.
- Low Internal Volume facilitates purging and reduces contamination potential.
- Diaphragm Seal Outlet Valve maintains gas purity.
- Filter in Inlet traps foreign matter, extends regulator life and reduces maintenance.
- Threaded Holes in Rear of Regulator permit front panel mounting.

OPTIONAL FEATURES

- Captured Venting Configuration provides 1⁄16" NPTF vent port and stem packing allowing for complete capturing of bonnet when connected to a vent line or disposal system.
- Mounting Ring permits regulator to be panel mounted.
- Internal (Inboard) Helium Leak Test and Test Report determines inboard leak rate of gas from regulator to atmosphere; test report certifies leak rate of less than 2 x 10^{-8} sccs air equivalent.
- External (Outboard) Helium Leak Test and Test Report determines outboard leak rate of gas from regulator to atmosphere; test report certifies leak rate of less than 5 x 10^{-7} sccs air equivalent.

SPECIFICATIONS

Maximum Inlet Pressure:
APC-3: 3000 psig
APC-2: 800 psig
APC-1: 300 psig

Inlet Pressure Gauge: See Table I

Delivery Pressure Range: See Table I

Delivery Pressure Gauge: See Table I

Filter: 40 micron

Gauge Size: 2" Dial

Operating Temp. Range: -40°F to +140°F

Flow Coefficient:
Regulator: Cv = 0.06
Outlet Valve: Cv = 0.17

Internal Volume:
Regulator (body only): 6.0 cc

Inlet Connection: CGA 296, 320, 326, 330, 346, 350, 510, 540, 580, 590, 660 or 705 as ordered

Outlet Connection:
1⁄4" NPT female (on outlet valve)

Approximate Weight: 3 lbs.

MATERIALS OF CONSTRUCTION

Body and Outlet Valve:
Type 316 Stainless Steel Bar Stock

Gauges: Type 316 Stainless Steel

Bonnet: 300 Series Stainless Steel

Other Metal Parts Exposed to Gas:
Type 316 Stainless Steel

Seats: PCTFE

Seals: Teflon®

Diaphragms: Type 316 Stainless Steel

TABLE I

	Inlet Pressure		Delivery Pressure		
Part No.	Gauge (dual scale) (psig)	(bar)	Range (psig)	Gauge (dual scale) (psig)	(bar)
APC-3-30-(CGA)	0–4000	0–275	2–30	-30" Hg–0–60	-1–0–4
APC-3-75-(CGA)	0–4000	0–275	4–75	-30" Hg–0–100	-1–0–7
APC-3-150-(CGA)	0–4000	0–275	10–150	-30" Hg–0–200	-1–0–14
APC-3-300-(CGA)	0–4000	0–275	20–300	0–400	0–27
APC-3-500-(CGA)	0–4000	0–275	30–500	0–600	0–34
APC-2-30-(CGA)	0–1000	0–69	2–30	-30" Hg–0–60	-1–0–4
APC-2-75-(CGA)	0–1000	0–69	4–75	-30" Hg–0–100	-1–0–7
APC-2-150-(CGA)	0–1000	0–69	10–150	-30" Hg–0–200	-1–0–14
APC-2-300-(CGA)	0–1000	0–69	20–300	0–400	0–27
APC-2-500-(CGA)	0–1000	0–69	30–500	0–600	0–34
APC-1-30-(CGA)	0–400	0–27	2–30	-30" Hg–0–60	-1–0–4
APC-1-75-(CGA)	0–400	0–27	4–75	-30" Hg–0–100	-1–0–7
APC-1-150-(CGA)	0–400	0–27	10–150	-30" Hg–0–200	-1–0–14

Where "(CGA)" is indicated above, insert appropriate Compressed Gas Association connection number to complete the part number. Example: APC-3-30-580. Order by complete part number.

OPTIONAL EQUIPMENT

Equipment	Part No.
Panel Mounting Ring*	PM3803
Inboard Helium Leak Test and Test Report	HT1000
Outboard Helium Leak Test and Test Report	HT1001
Compression Fittings* (male connectors)	
1⁄4" NPT male x 1⁄8" compression	SG6713
1⁄4" NPT male x 1⁄4" compression	SG6714
Safety Mounting Brackets*	See page 86
Captured Venting Configuration	SG5650

* If selected, these items are not installed on the regulator. They are shipped as separate items.

TWO-STAGE REGULATORS FOR CORROSIVE, HIGH PURITY GASES (MODEL APG)

The Model APG regulator is specially suited for applications requiring both corrosion and diffusion resistance in a two-stage regulator. It is recommended for high purity gases or gas mixtures that have corrosive properties. The two-stage design provides constant outlet pressure regardless of changes in cylinder (inlet) pressure.

APG Regulator

STANDARD FEATURES

- Type 316 Stainless Steel Bar Stock Construction provides maximum corrosion resistance.
- Metal to Metal Diaphragm Seal assures maximum diffusion resistance.
- High Purity Regulator Design permits vacuum purging of regulator.
- Diaphragm Seal Outlet Valve maintains high purity regulator design.
- Filter in Inlet traps foreign matter, extends regulator life and reduces maintenance.

OPTIONAL FEATURES

- Captured Venting Configuration provides 1⁄16" NPTF vent ports and stem packing allowing for complete capturing of second stage bonnet when connected to a vent line or disposal system.
- Mounting Ring permits regulator to be panel mounted.
- Internal (Inboard) Helium Leak Test and Test Report determines inboard leak rate of gas from regulator to atmosphere; test report certifies leak rate of less than 2 x 10^{-8} sccs air equivalent.
- External (Outboard) Helium Leak Test and Test Report determines outboard leak rate of gas from regulator to atmosphere; test report certifies leak rate of less than 5 x 10^{-7} sccs air equivalent.

SPECIFICATIONS

Maximum Inlet Pressure: 3000 psig

Inlet Pressure Gauge (dual scale):
0–4000 psig / 0–275 bar

Delivery Pressure Range: See Table I

Delivery Pressure Gauge: See Table I

Filter: 40 micron

Gauge Size: 2" Dial

Operating Temperature Range:
-40°F to +140°F

Flow Coefficient:
Regulator: Cv = 0.05
Outlet Valve: Cv = 0.17

Inlet Connection: CGA 296, 320, 326, 330, 346, 350, 510, 540, 580, 590, 660 or 705 as ordered

Outlet Connection:
1⁄4" NPT female (on outlet valve)

Supply Pressure Effect:
0.04 psi per 100 psi

Approximate Weight: 5 lbs.

MATERIALS OF CONSTRUCTION

Body and Outlet Valve:
Type 316 Stainless Steel Bar Stock

Gauges: Type 316 Stainless Steel

Bonnet: 300 Series Stainless Steel

Other Metal Parts Exposed to Gas:
Type 316 Stainless Steel

Seats: PCTFE

Seals: Teflon®

Diaphragms: Type 316 Stainless Steel

TABLE I

Part No.	Delivery Pressure Range (psig)	Gauge (dual scale) (psig)	(bar)
APG-3-30-(CGA)	2–30	-30" Hg–0–60	-1–0–4
APG-3-75-(CGA)	4–75	-30" Hg–0–100	-1–0–7
APG-3-150-(CGA)	10–150	-30" Hg–0–200	-1–0–14
APG-3-300-(CGA)	20–300	0–400	0–27
APG-3-500-(CGA)	30–500	0–600	0–34

Where "(CGA)" is indicated above, insert appropriate Compressed Gas Association connection number to complete the part number. Example: APG-3-30-580. Order by complete part number.

OPTIONAL EQUIPMENT

Equipment	Part No.
Panel Mounting Ring*	PM3803
Inboard Helium Leak Test and Test Report	HT1000
Outboard Helium Leak Test and Test Report	HT1001
Compression Fittings* (male connectors)	
1⁄4" NPT male x 1⁄8" compression	SG6713
1⁄4" NPT male x 1⁄4" compression	SG6714
Safety Mounting Brackets*	See page 86
Captured Venting Configuration	SG5650

* If selected, these items are not installed on the regulator. They are shipped as separate items.

SINGLE-STAGE, TIED SEAT REGULATORS FOR CORROSIVE, ULTRA HIGH PURITY GASES (AG3870 SERIES)

The AG3870 Series regulator is designed for use with ultra high purity, corrosive gases, such as those used in semiconductor manufacturing. It is recommended for applications where inlet pressure does not vary greatly, as with liquefied gases. The AG3870 Series features a tied seat (tied diaphragm) design and a stainless steel diaphragm to insure positive shutoff of the regulator with hazardous gases.

AG3877 Regulator

STANDARD FEATURES

- Tied Seat ensures positive shutoff if particulate matter should lodge in the seat, a common problem with corrosive gases.
- 1/16" NPT Female Bonnet Vent Port and Stem Packing allows for complete capturing of bonnet when connected to a vent line or disposal system.
- Low Internal Volume facilitates purging and reduces contamination potential.
- Type 316 Stainless Steel Bar Stock Construction provides maximum corrosion resistance.
- Metal to Metal Diaphragm Seal assures maximum diffusion resistance.
- High Purity Regulator Design permits vacuum purging of regulator.
- Diaphragm Seal Outlet Valve maintains gas purity.
- Filter in Inlet traps foreign matter, extends regulator life and reduces maintenance.
- Threaded Holes in Rear of Regulator permit front panel mounting.

OPTIONAL FEATURES

- Mounting Ring permits regulator to be panel mounted.
- Internal (Inboard) Helium Leak Test and Test Report determines inboard leak rate of gas from regulator to atmosphere; test report certifies leak rate of less than 2 x 10^{-8} sccs air equivalent.
- External (Outboard) Helium Leak Test and Test Report determines outboard leak rate of gas from regulator to atmosphere; test report certifies leak rate of less than 5 x 10^{-7} sccs air equivalent.

SPECIFICATIONS

Maximum Inlet Pressure:
AG3870, AG3872, AG3873: 800 psig
AG3874, AG3876, AG3877: 3000 psig

Inlet Pressure Gauge: See Table I

Delivery Pressure Range: See Table I

Delivery Pressure Gauge: See Table I

Filter: 40 micron

Gauge Size: 2" Dial

Operating Temp. Range: -40°F to +140°F

Flow Coefficient:
Regulator: Cv = 0.06
Outlet Valve: Cv = 0.17

Internal Volume:
Regulator (body only): 6.0 cc

Inlet Connection: CGA 320, 326, 330, 350, 580, 660 or 705 as ordered

Outlet Connection:
1/4" NPT female (on outlet valve)

Approximate Weight: 3 lbs.

MATERIALS OF CONSTRUCTION

Body and Outlet Valve:
Type 316 Stainless Steel Bar Stock

Gauges: Type 316 Stainless Steel

Bonnet: 300 Series Stainless Steel

Other Metal Parts Exposed to Gas:
Type 316 Stainless Steel

Seats: PCTFE

Seals: Teflon®

Diaphragms: Type 316 Stainless Steel

TABLE I

Part No.	Inlet Pressure Gauge (dual scale) (psig)	(bar)	Delivery Pressure Range (psig)	Gauge (dual scale) (psig)	(bar)
AG3870-(CGA)	0–1000	0–69	2–30	-30" Hg–0–60	-1–0–4
AG3872-(CGA)	0–1000	0–69	4–75	-30" Hg–0–100	-1–0–7
AG3873-(CGA)	0–1000	0–69	10–150	-30" Hg–0–200	-1–0–14
AG3874-(CGA)	0–4000	0–275	2–30	-30" Hg–0–60	-1–0–4
AG3876-(CGA)	0–4000	0–275	4–75	-30" Hg–0–100	-1–0–7
AG3877-(CGA)	0–4000	0–275	10–150	-30" Hg–0–200	-1–0–14

Where "(CGA)" is indicated above, insert appropriate Compressed Gas Association connection number to complete the part number. Example: AG3870–330. Order by complete part number.

OPTIONAL EQUIPMENT

Equipment	Part No.
Panel Mounting Ring*	PM3803
Inboard Helium Leak Test and Test Report	HT1000
Outboard Helium Leak Test and Test Report	HT1001
Outlet Fittings* (male connectors)	
1/4" NPT male x 1/8" compression	SG6713
1/4" NPT male x 1/4" compression	SG6714
1/4" NPT male x 1/4" VCR® male	SG6960
Safety Mounting Brackets*	See page 86
Purge Assemblies*	See page 42

* If selected, these items are not installed on the regulator. They are shipped as separate items.

TWO-STAGE, TIED SEAT REGULATORS FOR CORROSIVE, ULTRA HIGH PURITY GASES (MODEL AGD)

The Model AGD regulator is designed for use with ultra high purity, corrosive gases, such as those used in semiconductor manufacturing. This regulator features convoluted stainless steel diaphragms and tied seats (tied diaphragms) in both stages providing for greater sensitivity and sealing integrity. The two-stage design provides constant outlet pressure regardless of changes in cylinder (inlet) pressure.

AGD Regulator

STANDARD FEATURES

- Tied Seats in both stages ensure positive shutoff if particulate matter should lodge in the seat, a common problem with corrosive gases.
- 1⁄16" NPT Female Bonnet Vent Ports and Stem Packing allow for complete capturing of bonnets when connected to a vent line or disposal system.
- Two-Stage Regulator Design ensures constant delivery pressure over varying inlet pressures.
- Type 316 Stainless Steel Bar Stock Construction provides maximum corrosion resistance.
- Metal to Metal Diaphragm Seal assures maximum diffusion resistance.
- High Purity Regulator Design permits vacuum purging of regulator.
- Diaphragm Seal Outlet Valve maintains gas purity.
- Filter in Inlet traps foreign matter, extends regulator life and reduces maintenance.

OPTIONAL FEATURES

- Mounting Ring permits regulator to be panel mounted.
- Internal (Inboard) Helium Leak Test and Test Report determines inboard leak rate of gas from regulator to atmosphere; test report certifies leak rate of less than 2 x 10^{-8} sccs air equivalent.
- External (Outboard) Helium Leak Test and Test Report determines outboard leak rate of gas from regulator to atmosphere; test report certifies leak rate of less than 5 x 10^{-7} sccs air equivalent.

SPECIFICATIONS

Maximum Inlet Pressure:
AGD-3: 3000 psig
AGD-2: 800 psig

Inlet Pressure Gauge: See Table I

Delivery Pressure Range: See Table I

Delivery Pressure Gauge: See Table I

Filter: 40 micron

Gauge Size: 2" Dial

Operating Temp. Range: -40°F to +140°F

Flow Coefficient:
Regulator: Cv = 0.05
Outlet Valve: Cv = 0.17

Inlet Connection: CGA 320, 326, 330, 350, 580, 660 or 705 as ordered

Outlet Connection:
¼" NPT female (on outlet valve)

Supply Pressure Effect:
0.06 psi per 100 psi

Approximate Weight: 4 lbs.

MATERIALS OF CONSTRUCTION

Body and Outlet Valve:
Type 316 Stainless Steel Bar Stock

Gauges: Type 316 Stainless Steel

Bonnet: 300 Series Stainless Steel

Other Metal Parts Exposed to Gas:
Type 316 Stainless Steel

Seats: PCTFE

Seals: Teflon®

Diaphragms: Type 316 Stainless Steel

TABLE I

	Inlet Pressure		Delivery Pressure		
Part No.	Gauge (dual scale) (psig)	(bar)	Range (psig)	Gauge (dual scale) (psig)	(bar)
AGD-3-30-(CGA)	0–4000	0–275	2–30	-30" Hg–0–60	-1–0–4
AGD-3-75-(CGA)	0–4000	0–275	4–75	-30" Hg–0–100	-1–0–7
AGD-3-150-(CGA)	0–4000	0–275	10–150	-30" Hg–0–200	-1–0–14
AGD-2-30-(CGA)	0–1000	0–69	2–30	-30" Hg–0–60	-1–0–4
AGD-2-75-(CGA)	0–1000	0–69	4–75	-30" Hg–0–100	-1–0–7
AGD-2-150-(CGA)	0–1000	0–69	10–150	-30" Hg–0–200	-1–0–14

Where "(CGA)" is indicated above, insert appropriate Compressed Gas Association connection number to complete the part number. Example: AGD-3-30-330. Order by complete part number.

OPTIONAL EQUIPMENT

Equipment	Part No.
Panel Mounting Ring*	PM3803
Inboard Helium Leak Test and Test Report	HT1000
Outboard Helium Leak Test and Test Report	HT1001
Outlet Fittings* (male connectors)	
¼" NPT male x ⅛" compression	SG6713
¼" NPT male x ¼" compression	SG6714
¼" NPT male x ¼" VCR® male	SG6960
Safety Mounting Brackets*	See page 86
Purge Assemblies*	See page 42

* If selected, these items are not installed on the regulator. They are shipped as separate items.