

Model 3500 Series

High Purity Stainless Steel 316 Regulators

DESCRIPTION

Model 3500 Series single-stage stainless steel regulators are designed for corrosion resistant/high purity handling of liquefied gases. Because of the high purity design, these regulators can be used for free gases or mixtures providing the small outlet pressure change caused by cylinder pressure decay is not objectionable.



APPLICATIONS

In addition to the specific semiconductor manufacturing applications shown below this high purity regulator is used successfully in moisture analysis, trace hydrocarbon analysis, air pollution and vehicle emission analysis, and other highly critical laboratory techniques.

Gas or Mixture	Model
Arsine	3503-350
Germane	3501-350
Hydrogen Selenide	3501-660
Silane	
1X, 3P Cylinders	3501-510
1A, 1D, 1P, 1Y Cylinders	3503-350
4X, 7X	3502-350
Phosphine	3502-350 3505-350
Ammonia Mixtures*	3503-660
Arsine Mixtures	
Diborane Mixtures	
Germane Mixtures	3503-350
Hydrogen Selenide Mixtures	
Phosphine Mixtures	
Silane Mixtures	
Carrier Gases — Low Pressure	3503 (CGA)
Carrier Gases — Medium Pressure	3500 (CGA) 3506 (CGA)

MATERIALS OF CONSTRUCTION

Body:	316 Stainless steel
Diaphragm:	316 Stainless steel
Other wetted parts:	Stainless steel
Seat:	Molded Tefzel
Gaskets:	Teflon®

DESIGN FEATURES

- **Integral flareless tube fitting on outlet** . . . Eliminates possible leak paths
- **Stainless Steel 316 body and diaphragm** . . . Assures high system purity. Allows high vacuum on regulator interior without diaphragm distortion. This assures complete system purging.
- **Ultrasonically cleaned** . . . Allows high purity gas handling without costly "pre-cleaning".
- **Helium leak rate certification available** . . . Assurance that inboard leak rate is less than 2×10^{-10} ccs and that possible back diffusion of atmospheric contamination is eliminated.
- **Stainless Steel 316 diaphragm sealed packless valve on outlet** . . . Maintains system purity even at regulator outlet.
- **Bonnet Vent Port**** . . . Allows safe venting of hazardous gases in the unlikely event of a diaphragm failure.
- **Purge Port provided** . . . Simplifies permanent installation of purge connections.
- **Body Tapped for Panel Mounting** . . . Simplifies panel mounting installations.

**Specify venting requirement at time of order.

SPECIFICATIONS

Maximum inlet pressure:	3000 psi (20,700 kPa)
Temperature range:	-40 to 150°F (-40 to 65°C)
Maximum flow of air:	3500 450 cfh (210 liters/min)
	3501 170 cfh
	3502 (80 liters/min)
	3503
	3505 380 cfh (180 liters/min)
	3506 1000 cfh (480 liters/min)
Inlet port in body:	1/4" NPT
Body Panel Mount Tap	10-24 x 3/8" deep
Outlet:	1/4" Flareless tube fitting (stainless steel)
Overall dimensions:	8" w x 9 1/2" h x 4" d (20 x 24 x 10 cm)
Shipping weight:	4 lb. 2 oz. (1.9 kg)

NOTE: This regulator is assembled and tested in a class 100 clean room. For additional information, request Tech/Brief TB-111.

MODELS

Model * *	Delivery Pressure Range (psig)	Delivery Pressure Gauge (psig)	Cylinder Pressure Gauge (psig)
3500-(CGA)	4-75	0-100	0-3000
3501-(CGA)	0-25	30" vac. - 0-30	30" vac. - 0-300
3502-(CGA)	0-25	30" vac. - 0-30	0-1000
3503-(CGA)	0-25	30" vac. - 0-30	0-3000
3505-(CGA)	0-75	0-100	0-1000
3506-(CGA)	0-200	30" vac. - 0-300	0-3000

OPTIONS

Inboard Helium Leak Rate Certification

Combination Inboard/Outboard Helium Leak Rate Certification

Model 4744 Body Purge Assembly

Model 4774 Cross Purge Assembly

Bonnet Vent Connection

Dome Loading for Remote Setting of Outlet Pressure

Swagelok® Outlet Connection

Model 6244 Relief Valve for Downstream

Overpressure Protection (Not recommended for Silane service)

**Specify CGA Connection