

APTech

ADVANCED PRESSURE TECHNOLOGY

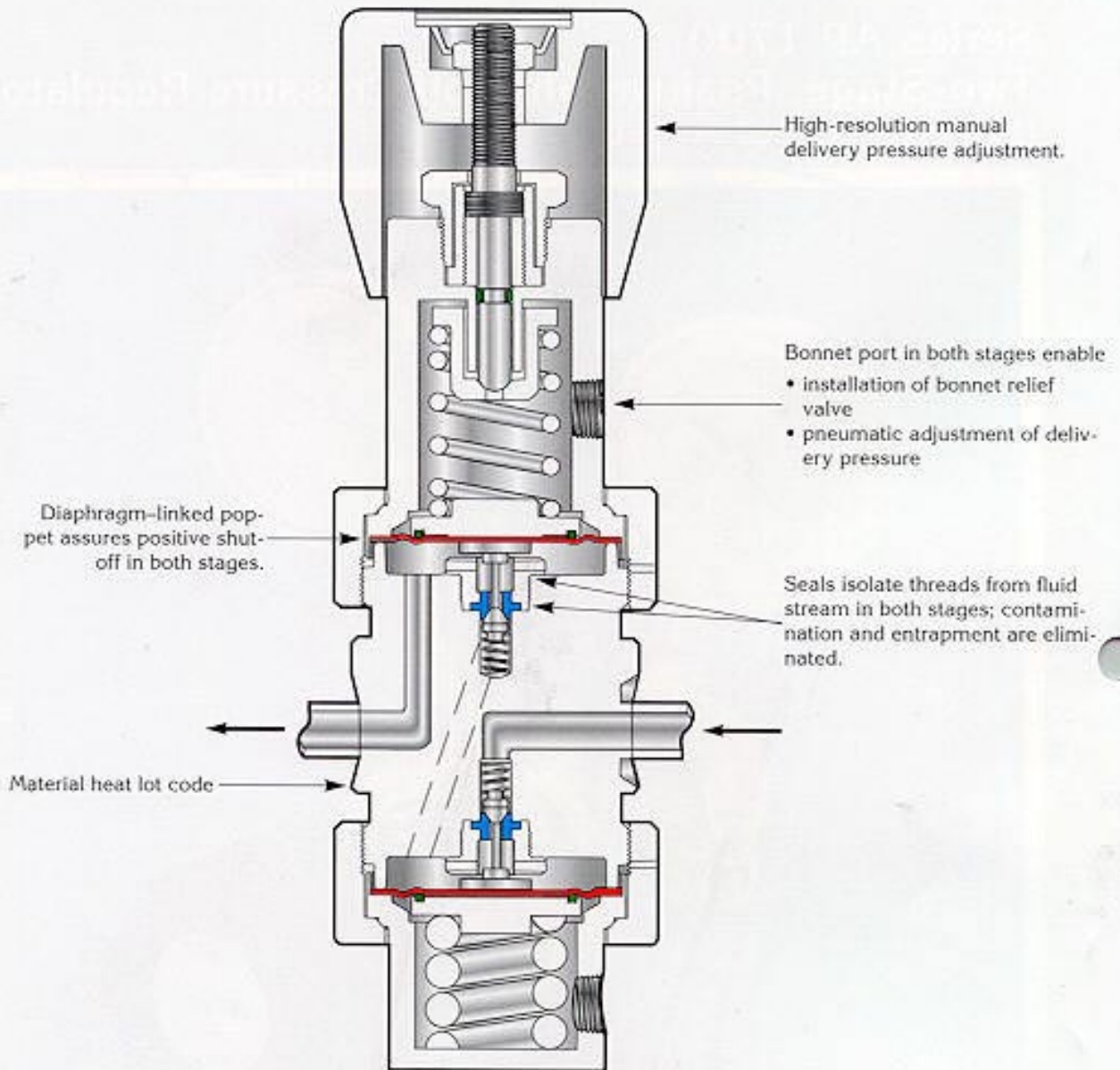
Series AP 1700

Two-Stage, Positive Shut-off Pressure Regulator
Diaphragm-Linked Poppet™



- SS 316L construction
- Manually or pneumatically adjustable
- 15 μ m surface finish (10, 7 and 5 μ m optional)
- Vacuum to 3500 psig (240 bar)
- Cleaned, assembled and packaged for high purity semiconductor applications

Unprecedented performance in a two-stage, positive shut-off pressure regulator!



A modern pressure regulator for modern applications!

AP Tech Series AP 1700 Pressure Regulators incorporate new features which eliminate fluid stream contamination problems that have plagued users of conventional high purity pressure regulators.

These regulators are especially recommended for high-pressure and hazardous fluids of all types, including arsine, phosphine, silane, nitrogen trifluoride, diborane, and oxygen.

Particle shedding is a thing of the past, thanks to AP Tech's exclusive diaphragm - linked poppet and seat design. Seals protect all threads from the fluid stream. These many exclusive features make Series AP 1700 pressure regulators ideal for applications that demand the ultimate in fluid stream purity!

Engineering data – Series AP 1700 Pressure Regulators

Operating parameters

Source pressure	vacuum to 3500 psig (240 bar)
Delivery pressure (AP 1702)	1 to 30 psig (0.07 to 2 bar)
Delivery pressure (AP 1706)	2 to 60 psig (0.14 to 4 bar)
Delivery pressure (AP 1710)	2 to 100 psig (0.14 to 7 bar)
First stage pressure	175 psig (12 bar)
Proof pressure	4000 psig (276 bar)
Burst pressure	8000 psig (551 bar)

Other parameters – all valves

Inlet and outlet connectors	¼ or ⅜ inch face-seal or tube weld, ¼ inch NPTF
Actuation/relief port	⅜ inch NPT
Flow coefficient (Cv)	0.05
Internal volume	0.8 in ³ (13 cm ³)
Operating temperature	-40° to +160°F (-40° to +71°C)
Surface finish	10–15µin (0.25–0.4µm) standard 10µin (0.25µm); 7µin (0.18µm); and 5µin (0.13µm) optional
Inboard leakage	2 x 10 ⁻¹⁰ sccs
Outboard leakage	2 x 10 ⁻⁹ sccs He at 1500 psig inlet pressure
Leakage across seat	4 x 10 ⁻⁸ sccs He at 1000 psig inlet pressure
Installation	panel (optional)
Delivery pressure rise	0.05 psi per 100 psi source pressure drop

Materials

Type of service	Series AP 1700 S Noncorrosive	Series AP 1700 SH Corrosive
Wetted Parts		
Body	stainless steel 316L VAR	stainless steel 316L VAR
Poppet, nozzle & diaphragm	stainless steel 316L VAR	Hastelloy® alloy C-22
Finish	electropolished and passivated	electropolished and passivated
Seats	PCTFE (Vespel® optional)	PCTFE
Non-wetted Parts		
Bonnets, caps, plates	nickel-plated brass	nickel-plated brass
Diaphragm springs	stainless steel 302	stainless steel 302
O-rings	Viton®	Viton
Stem	brass	brass

All specifications subject to change without notice

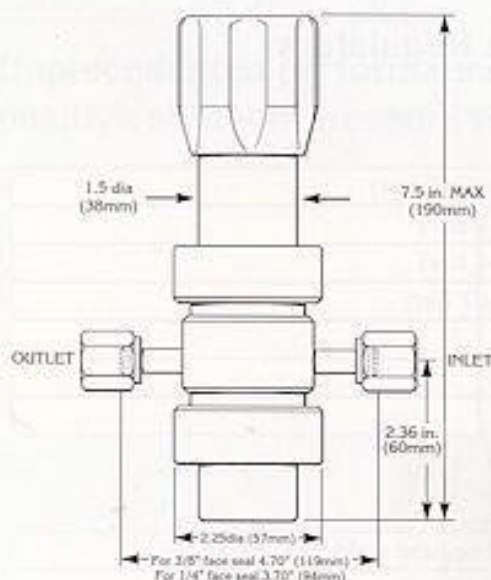
Vespel® DuPont
Hastelloy® Haynes Corporation

Viton® DuPont

Cleaning and packaging

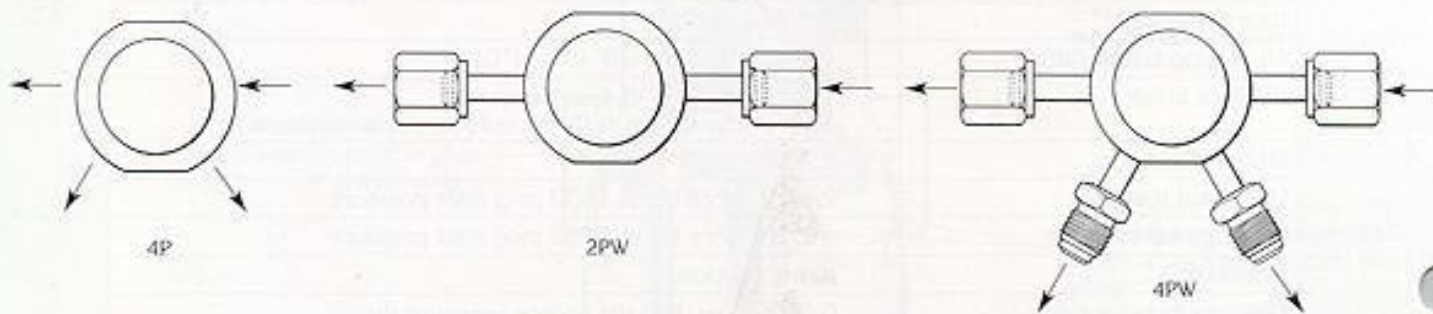
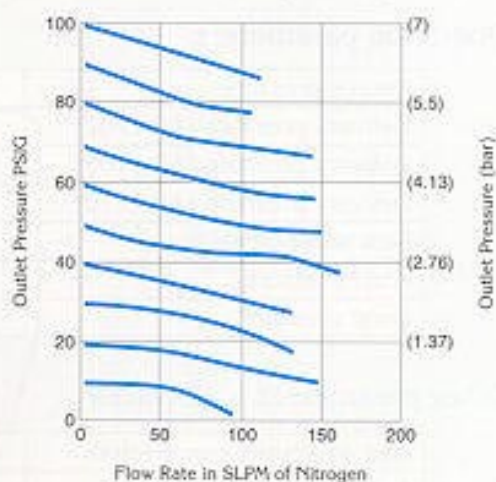
Cleaning is a multi-step process performed in a Class 100 clean room. Parts are ultrasonically cleaned with a wetting agent initially and then progressively with hot and cold DI water. Cleaned parts are then blown dry with ultra pure nitrogen prior to being baked dry in a nitrogen atmosphere.

Each regulator is then individually assembled, pressure tested, functionally tested and helium leak tested. Labels, including a unique serial number, are installed prior to products being double packaged under ultra pure nitrogen.



MODEL AP 1700

Inlet Pressure:
3000 - 200 psi
(207 - 14 bar)



ORDERING INFORMATION

Series AP 1700	S Material	M Surface Finish Options	4PW Ports	FV4 - FV4 Connections Inlet Outlet	40 - V3 Gauges* Source Delivery*	P Options
AP1702 - 1-30 psi (0.07 to 2 bar) AP1706 - 2-60 psi (.14 to 4 bar) AP1710 - 2-100 psi (.14 to 7 bar)	S = Stainless steel SH = Stainless steel with Hastelloy internals	M = 10µ in. Ra V = 7µ in. Ra X = 5µ in. Ra	4P = 4 ports (1/4 NPTF) 4PW = 4 ports butt weld	FV4 = 1/4 inch face-seal female MV4 = 1/4 inch face-seal male TW4 = 1/4 inch tube weld stub FV6 = 3/8 inch face-seal female	0 = No gauge V3 = 30-0-30-psi/bar L = 30-0-60 psi/bar 1 = 30-0-100 psi/bar 2 = 0-200 psi/bar 10 = 0-1000 psi/bar 40 = 0-4000 psi/bar	P = Panel installation ring** VS = Vespel seat CGA = Inlet fitting 320, 330, 350, 580

* Gauge ports are always 1/4 inch face-seal for butt weld. Any combination of male or female face-seal available for inlet and outlet.

** On panel mount option, bonnet port is not threaded. Panel hole 1.56" dia.

Products by AP Tech

AP Tech manufactures a wide array of products exclusively for the semiconductor industry. Pressure regulators, valves, check valves and a variety of flow devices are available for applications ranging from the source cylinder cabinet, bulk delivery systems through point of use including VMB distribution boxes and process tool gas trays. Products can be tailored for specific needs with custom fittings, dimensions, porting or testing with an option of multiport, monoblock and surface mount configurations.