

QUANTUM 944AOPLP

**Air Operated,
Low Pressure
Diaphragm Valve**



Veriflo's 944AOPLP is an air-operated low pressure version of the process proven 944 diaphragm valve for use in gas cabinets. It is capable of handling pressures from vacuum to 125 psig.



features

- ▶ "VeriClean", Veriflo's low sulfur high purity 316L Stainless Steel material enhances electropolishing, welding, and corrosion resistance.
- ▶ Standard surface finish 5 micro inch Ra (.13 mm).
- ▶ Internally threadless and springless.
- ▶ Field serviceable seat can be replaced without special tools.
- ▶ A unique patented compression member loads the seal uniformly which eliminates the need for threaded components or a crimping operation.
- ▶ Fully functional from vacuum to 125 psig.
- ▶ Aerodynamic, fully swept flow passages.
- ▶ Minimal particle generation and particle entrapment areas.
- ▶ Available in normally closed (NC) or normally open (NO).
- ▶ 100% Helium leak tested.
- ▶ Veriflo's proprietary cleaning process, removes metallic ions, organic films and surface adhering particles.

materials of construction

Wetted

Body "VeriClean", Veriflo's high purity type 316L Stainless Steel, Hastelloy C-22®
Seat PCTFE (formerly Kel-F 81®)
Optional Vespel®
Diaphragm Elgiloy® or equivalent
Compression Member "VeriClean", Veriflo's type 316L Stainless Steel, Hastelloy C-22®

Non-wetted

Nut 316L Stainless Steel
Cap 316L Stainless Steel

Actuator material

Body Anodized Aluminum
Pistons Brass
O-ring seals Viton®

operating conditions

Maximum operating pressure: 125 psig (8.6 barg)
For oxygen Refer to CGA G-4.4 Industrial practices for gaseous oxygen
Minimum operating pressure Vacuum
Actuation pressure 60 to 100 psig (4 to 8.3 barg)
Temperature -40°F to 150°F (-40°C to 65°C)
Bake out 250°F (121°C) in the open position

functional performance

Flow capacity $C_v = .25$
(SEMI Flow Coefficient Test #F-32-0998)

Designed Leak Rate:

Outboard 1×10^{-9} scc/sec He
Inboard 2×10^{-10} scc/sec He
Across seat 4×10^{-9} scc/sec He

standard connections

Any configuration of FS male and/or female fittings:
1/4 inch gland to gland length 2.78 ± .02 in.
(70.6 ± .05 mm)
Optional 3.06 ± .02 in. (77.7 ± .05 mm)

1/4 inch tube stubs inlet and outlet
End to end length . . 1.75 ± .02 in. (44.5 ± .05 mm)
1/4 inch female pipe threads inlet and outlet
End to end length 1.25 inches (31.75 mm)

Note : Other configurations available as options including as many as five ports

internal volume

2.18cc

surface finishes

Standard Ra 5 micro inch (.13 mm)

approximate weight

.75 lbs (.34 kg)



QUANTUM 944AOPLP

Operation

The 944AOPLP is an exceptionally clean, air actuated valve engineered to provide reliable performance from vacuum to 125 psig. The valve cross section on the opposite page illustrates the minimall number of wetted components of this unique design. The only moving part in the wetted area is the diaphragm itself.

The heart of the 944AOPLP is the patented compression member which uniformly loads the PCTFE (formerly Kel-F81®) seat effecting a static seal (Ref. A) without the need for threads or crimping and allowing field replacement. The dynamic seal occurs at the top of the seat (Ref. B) which extends approximately .008 inches above the compression member. The valve is closed when the "button" at the end of the piston is compressed against the diaphragm, causing it to move downward and seal against the PCTFE seat.

The compression member performs a safety function as it provides a positive stop for the diaphragm. When the diaphragm meets the stop, the PCTFE seat is still well within its elastic limit.

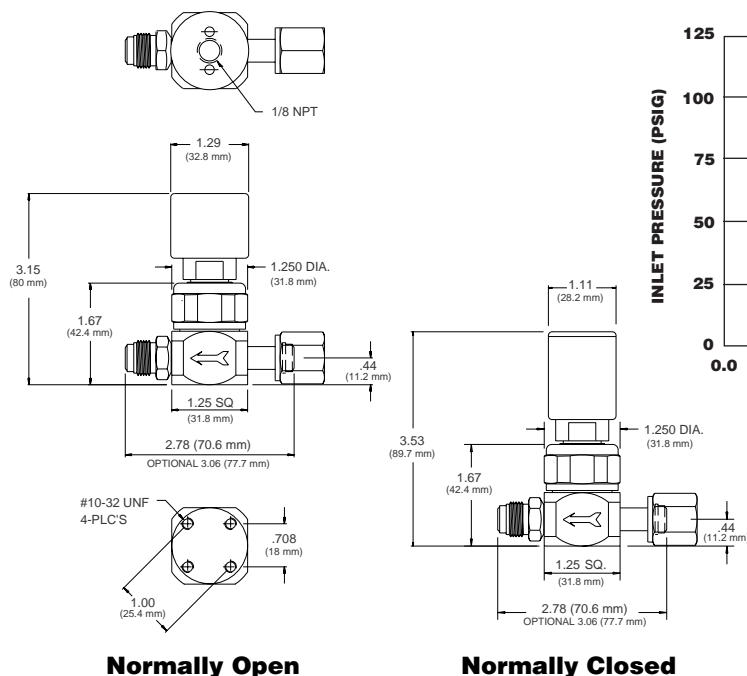
Actuator

The 944AOPLP actuator is a piston style unit, spring loaded to the normally closed position. The control pressure enters through the top of the actuator and flows down the sealed passageway through the center of the actuator piston. At a nominal 75 psig, the control pressure exerts an upward force on the bottom surface of the piston which displaces it upward to open the valve. The actuator spring forces the piston down to close the valve in the absence of adequate control pressure.

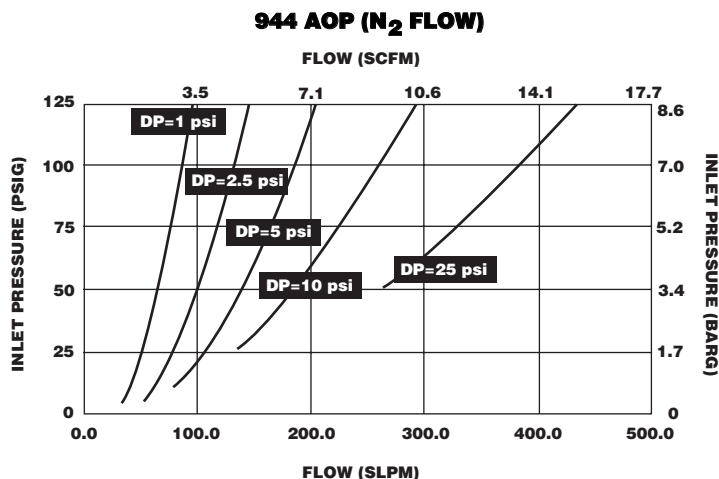
A normally open actuator which functions in a reverse manner is also available.

QUANTUM 944AOPLP

Dimensional Drawings



Flow Curve



Ordering Information

944AOPLP NC S FSMM VESP

BASIC SERIES | 944AOPLP = 944 Air Operated, Low Pressure

TYPE | NC = Normally Closed
NO = Normally Open

MATERIAL | S = 316L Stainless Steel
H = Hastelloy C-22®*

* Includes Hastelloy® C-22 Body and Compression Member
** Includes Hastelloy® C-22 Compression Member
*** Recommended for Nitrous Oxide (N₂O) Service

Note: Refer to Valve Selection Guide for multiple porting selections.

Hastelloy C-22® is a registered trademark of Haynes International, Inc.
Kel-F 81® is a registered trademark of 3M Company.
Vespel® is a registered trademark of DuPont Company.
Viton® is a registered trademark of DuPont Elastomers Company.
Elgiloy® is a registered trademark of Elgiloy Company.
PEEK™ is a registered trademark of Victrex plc.

OPTIONAL FEATURES

BL008 = Bleed Valve .008 Orifice
BL015 = Bleed Valve .015 Orifice
LS = Limit Switch
TH = Hastelloy C-22® Trim**
PEEK = PEEK™ Seat
VESP = Vespel®*** Seat
2.3 = 2.3" Fixed Male Face Seals

CONNECTIONS

FSMM = 1/4" Face Seal, Male in-Male out
FSFF = 1/4" Face Seal, Female in-Female out
FSFM = 1/4" Face Seal, Female in-Male out
FSMF = 1/4" Face Seal, Male in-Female out
FS8MM = 1/2" Face Seal, Male in-Male out
FS8FF = 1/2" Face Seal, Female in-Female out
FS8FM = 1/2" Face Seal, Female in-Male out
FS8MF = 1/2" Face Seal, Male in-Female out
P = 1/4" NPTF
TS = 1/4" Tube Stub
TS6 = 3/8" Tube Stub
TS8 = 1/2" Tube Stub

Parker Hannifin Corporation

Veriflo Division
250 Canal Boulevard, P.O. Box 4034
Richmond, CA 94804-0034
Phone (510) 235-9590 • Fax (510) 232-7396

Parker
Instrumentation