

Diaphragm Valve



Veriflo's Quantum 944 manually operated diaphragm valve is offered in six different standard models:

- 9441 Indicating Handwheel
- 944L Lever
- 944LL Locking Lever
- 944S Handwheel
- 944G Toggle (Refer to 944G Literature)
- 944M Mini-Lever



features

- "VeriClean", Veriflo's low sulfur high purity 316L Stainless Steel enhances electro-polishing, welding, and corrosion resistance.
- Standard surface finishes 5 micro inch Ra (.13 micro meter).
- Internally threadless and springless.
- No change in the lever actuating position over the life of the product.
- Fully field serviceable seat can be replaced without special tools.
- A unique patented compression member which loads the seal uniformly.
- Fully functional from vacuum to 3,500 psig.
- Minimum particle generation and particle entrapment areas.
- ▶ 100% Helium leak tested.



 "Hurricane" cleaning, 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, optional Hastelloy C-22 $^{\circ}$
Seat PCTFE (formerly Kel-F 81°),
Optional Vespel®
Diaphragm: Elgiloy® or equivalent
Compression Member "VeriClean", Veriflo's
high purity type 316L Stainless Steel,
Optional Hastelloy C-22°

Non-wetted

Nut	316L Stainless Steel
Сар	316L Stainless Steel
Lever Aluminu	um Powder Coated

operating conditions

Maximum operating pressure
(240 barg)
Minimum operating pressureVacuum
For oxygenrefer to CGA G-4.4
Industrial Practices for Gaseous Oxygen
Temperature40°F to 150°F (-40°C to 65°C)
Bake out \ldots 250°F (121°C) in the open position

functional performance

Flow capacity:
944L, 944LL, and 944MC _V = .18
944S, 944G, and 944IC _V = .25
(SEMI Flow Coefficient Test #F-32-0998
Design Leak Rate:
Outboard1x10 ⁻⁹ scc/sec He
Inboard2x10 ⁻¹⁰ scc/sec He
Across the seat4x10 ⁻⁹ scc/sec He

standard connections

internal volume 2.18 cc

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surface finishes Standard Ra 5 micro inch

(.13 micro meter) or less

approximate weight .75 lbs (.34 kg)

QUANUM 944

Operation The 944 is an exceptionally clean valve engineered to provide reliable performance from vacuum to 3,500 psig. The valve cross section on the opposite page illustrates the minimal number of wetted components of this unique design. The only moving part in the wetted area is the diaphragm itself.

The heart of the 944 is the patented compression member which uniformly loads the PCTFE seat effecting a static seal (Ref. A) without the need for threads or crimping and allowing for 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 seat.

The compression member serves also as a positive stop for the diaphragm. When the diaphragm meets the stop, the PCTFE is still well within its elastic limit.

The diaphragm is sealed metal-to-metal to the body and is the only seal to atmosphere other than the inlet and outlet connections. The diaphragm of the 944 is designed with an upward bias which enables the value to be used with either an upstream or downstream vacuum.

QUANUM 944

Flow Curve **Dimensional Drawings** 944 (.25 C_V) N N₂ FLOW (scfm) 3.5 7.1 10.6 14.1 17.1 125 8.6 DP = 1 psi 1.39 (35.3 m n) DP = 2.5 psi 7.0 100 INLET PRESSURE (psig) INLET PRESSURE (barg) DP = 5 psi - Ø1.25 (31.8 mm) 75 5.2 DP = 10 psi 2.71** (68.8 mm) DP = 25 psi **1.67** (42.4 mm) 50 3.4 _____.44 (11.2 mm) 1.25 SQ 25 1.7 (31.8 mm) 2.78 (70.6 mm) -OPTIONAL 3.06 (77.7 mm) 0 0 #10-32 UNF 4-PLC'S 0 100 200 300 400 500 (X6 2 N₂ FLOW (slpm) **.708** (18 mm) Ø ł **1.00** (25.4 mm

**944LL Height is 3.05 inch (7.62 mm)

Ordering Information

944 L S FS	SMM VESP
BASIC SERIES 944 TYPE G = Toggle I = Indicating Handwheel L = Lever LL = Lever LL = Lever Lock M = Mini Lever S = Handwheel MATERIAL S = 316L Stainless Steel H = Hastelloy C-22 ^{®+}	OPTIONAL FEATURES BL008 = Bleed Valve .008 Orifice BL015 = Bleed Valve .015 Orifice LK = LockOut-TagOut** PM = Panel Mount*** TH = Hastelloy C-22® Trin ◆ VESP = Vespel® Seat ◆ ◆ PEEK = PEEK TM Seat RD = Red Lever or Handwheel BK = Black Lever or Handwheel BU = Blue Indicating Handwheel GL = Gold Lever or Handwheel GR = Green Lever or Handwheel 2.3 = 2.3" Fixed Male Face Seals
 Includes Hastelloy® C-22 Body and Compression Member LockOut-TagOut Clamp for M Type Valves LockOut-TagOut Bracket for G Type Valves Not available with Indicating Handwheel (I) or AOP units Includes Hastelloy® C-22 Compression Member 	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
 Recommended for Nitrous Oxide (N₂0) Service Note: See Valve Selection Guide for multiple porting selections. Hastelloy C-22[®] is a registered trademark of Haynes International, Inc. KeI-F 81[®] is a registered trademark of 3M Company. Vespel[®] is a registered trademark of DuPont Company. Elgilov[®] is a registered trademark of Victrex plc. 	$\begin{array}{rcl} FSMF &=& 1/4" \mbox{ Face Seal, Male in-Female out} \\ FS8MM &=& 1/2" \mbox{ Face Seal, Male in-Male out} \\ FS8FF &=& 1/2" \mbox{ Face Seal, Female in-Female out} \\ FS8FM &=& 1/2" \mbox{ Face Seal, Female in-Female out} \\ FS8MF &=& 1/2" \mbox{ Face Seal, Male in-Female out} \\ P &=& 1/4" \mbox{ NPTF} \\ TS &=& 1/4" \mbox{ Tube Stub} \\ TS6 &=& 3/8" \mbox{ Tube Stub} \\ TS8 &=& 1/2" \mbox{ Tube Stub} \end{array}$

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Instrumentation

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