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DIAPHRAGM VALVES

Microelectronics Product Line

Catalog 4505/USA

October 2003

VERIFLO

ISO 9001 Certified

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DIAPHRAGM VALVES

Microelectronics Product Line

Catalog 4508/USA
October 2003

table of contents

Veriflo Division 1

SM917 1-1/8"". . . . . 2 - 3

SM930 1-1/8" & 1-1/2" . . . . . 4 - 7

SM955 1-1/2" . . . . . 8 - 11

930 . . . . . 12 - 15

930Y . . . . . 16 - 17

945 . . . . . 18 - 21

945Y . . . . . 22 - 23

955 . . . . . 24 - 25

955AOPLP . . . . . 26 - 27

955Y . . . . . 28 - 29

TITAN II AOP PLUS HP . . . . . 30 - 31

TITAN II AOP PLUS MP . . . . . 32 - 33

TITAN II AOP PLUS LP . . . . . 34 - 35

TITAN II MANUAL PLUS . . . . . 36 - 37

TITAN II Metal-Seal . . . . . 38 - 39

928AOPHP . . . . . 40 - 41

LockOut-TagOut . . . . . 42 - 43

VAC100 . . . . . 44 - 45

Parker Hannifin Corporation 46

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Richmond, CA 94804-0034
Telephone 510.235.9590
Fax 510.232.7396

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VERIFLO DIVISION

Veriflo Division, Parker Hannifin Corporation is a leading manufacturer of precision valves, regulators and surface mount components for the control and application of liquids and gases used in the fabrication of semiconductors, as well as in the chemical and petrochemical industries.

A Leading Manufacturer Of Precision Valves, Regulators & Surface Mount Components

Veriflo has maintained industry leadership over the past 95 years through innovative engineering, manufacturing and by placing a premium on quality customer care.

The division maintains two state-of-the-art Class 10 Clean Rooms at its Richmond, CA, facility and has adopted a corporate wide "Lean Manufacturing" philosophy, which is delivering greater value to the customer by eliminating wasteful steps through continuous improvement activities.

Veriflo Division's two manufacturing facilities develop and manufacture applications for the Semiconductor/High Purity and Instrument/Analyzer industries.

With the focus of maintaining the highest industry standards,

Maintained Industry Leadership By Placing A Premium On Quality Customer Care

Veriflo Division has achieved an ISO 9001 registration at both its Richmond, CA manufacturing plant and at its Carson City, NV facility. This certification confirms Veriflo's commitment to quality and excellence as recognized by the international community.

The Instrumentation Group of Parker Hannifin specializes in high quality, critical flow components for world-wide process instrumentation, ultra-high-purity, medical, analytical and biopharmaceutical applications.

Parker's Instrumentation Group has ten manufacturing plants and over 300 authorized distributor locations around the world to provide local inventory and technical support. Key markets for the Instrumentation Group include: Chemical Process, Power Generation, Oil and Gas Exploration, Semiconductor Manufacturing, Biomedical, and Analytical Equipment.

Note: For further information on Veriflo Division and or its product line visit the division web site at www.veriflo.com. For more information on Parker Hannifin Corporation visit the corporation's web site at www.parker.com.

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VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the Surface Mount 917 1-1/8"Ultra High Purity Diaphragm Valves providing exceptional performance for today's modular surface mount systems.

features

- 0.17 C_V for AOP style or 0.15 C_V for 1/4 turn manual style valves.
- "VeriClean", Veriflo's low sulfur high purity 316L Stainless Steel™, which enhances electropolishing, and corrosion resistance.
- Standard surface finish 5 micro inch Ra (.13 micro meter).
- Internally threadless and springless.
- Fully functional for pressure ranges from vacuum to 125 psig for Air Operated valves and 250 psig for manual valves.
- Change from air operated actuator to lever or visa versa without intruding into wetted area.

materials of construction

Wetted

Body . . . . . "VeriClean", Veriflo's custom high purity type 316L Stainless Steel™
Seat . . . . . PCTFE, Optional Vespel® or PEEK™
Diaphragm . . . . . Elgiloy® or equivalent

Non-wetted

Nut . . . . . Stainless Steel

operating conditions

Maximum operating pressure:
AOP . . . . . 125 psig(8.6 barg)
Manual . . . . . 250 psig (17.2 barg)

Minimum operating pressure . . . . . Vacuum
AOP Actuation . . . . . 75 psig (5 barg) nominal
Temperature . . . . . -40°F to 150°F (-40°C to 66°C)
Bake out . . . . . 250°F (121°C) in the open position

functional performance

Flow capacity:
AOP . . . . . C_V = .17
1/4 Turn manual . . . . . C_V = .15
(SEMI Flow Coefficient Test# F-32-0998)

Design Leak Rate:
Outboard . . . . . $4x10^{-9}$ scc/sec He
Inboard . . . . . $2x10^{-10}$ scc/sec He
Across seat . . . . . $1x10^{-9}$ scc/sec He

Design Proof Pressure:
AOP . . . . . 188 psig (13 barg)
1/4 Turn Manual . . . . . 375 psig (26 barg)

Design Burst Pressure:
AOP . . . . . 375 psig (26 barg)
1/4 Turn Manual . . . . . 750 psig (52 barg)

standard connetctions

SEMI Modular Interface

surface finishes

Standard Ra . . . . . 5 micro inch (.13 micro meter) or less

approximate weight

.7 lbs. (.32 kg)

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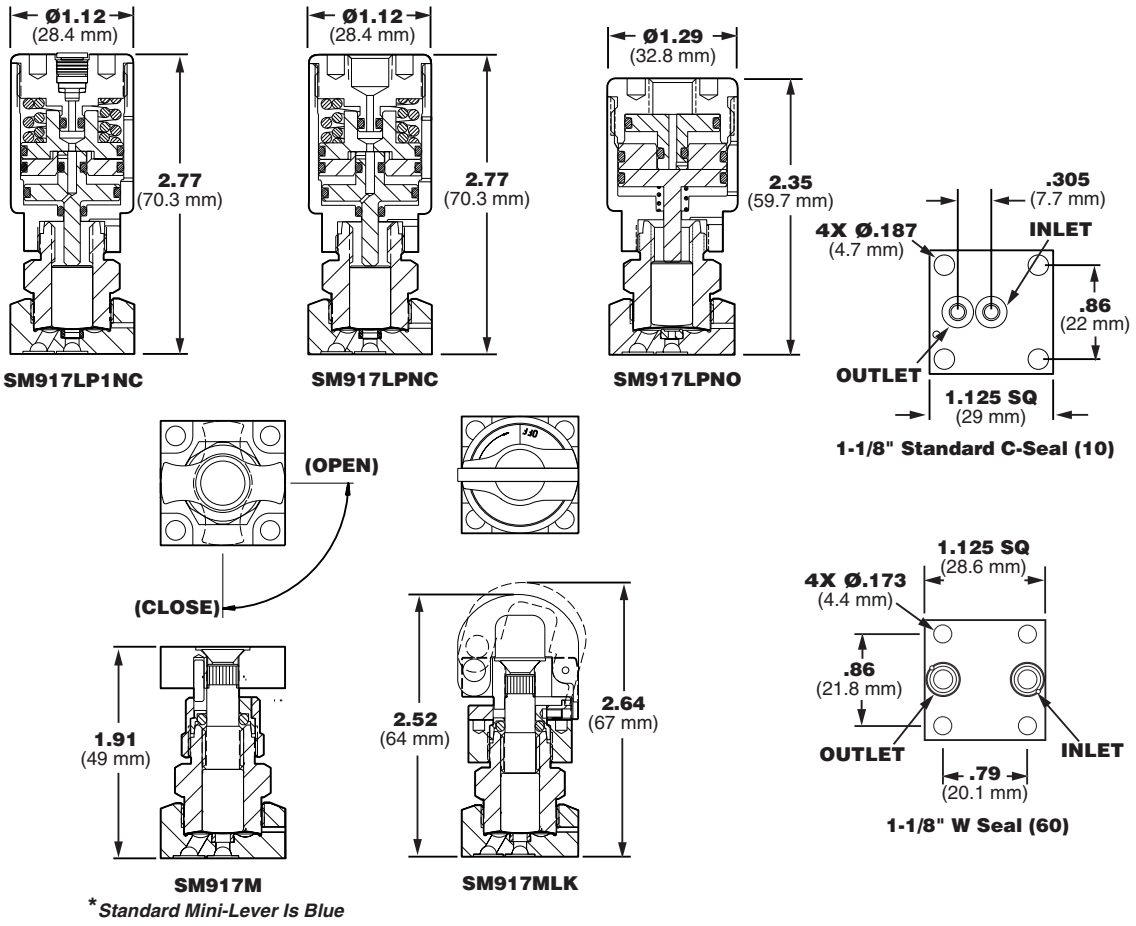
Dimensional Drawings



Ordering Information

SM917 M S 10 VESP

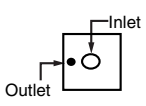
BASIC SERIES
SM917***

TYPE
M = Mini Lever
LPNC = Air Operated Normally Closed
LPNO = Air Operated Normally Open
LP1NC = Air Operated Normally Closed with Integral Cartridge Fitting (*Note: Cartridge Fitting for 1/8" O.D. Plastic Tubing*)
LP1NO = Air Operated Normally Open with Integral Cartridge Fitting (*Note: Cartridge Fitting for 1/8" O.D. Plastic Tubing*)

MATERIAL
S = 316L Stainless Steel

OPTIONAL FEATURES
LK = LockOut-TagOut*
VESP = Vespel® Seat**
PEEK = PEEK™ Seat
(Note: *Consult Factory For Additional Handle Colors*)

PORTING



10 = = 2 Port, Standard C-Seal
20 = = 3 Port, Standard C-Seal
30 = = 3 Port, Standard C-Seal
60 = = "W" Seal

* **LK Includes LOTO Lever for Mini Lever type Valve.**

** **Recommended for Nitrous Oxide (N_20) Service.**

*** **Only available with 1-1/8" body size**

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Elgiloy® is a registered trademark of Elgiloy Company.
PEEK™ is a trademark of Victrex plc.

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VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the Surface Mount 930 Air Operated and Manual Diaphragm Valve. The SM930 diaphragm valve provides exceptional performance for today's modular surface mount systems.

features

- Meets SEMI modular interface.
- "VeriClean", Veriflo's low sulfur high purity 316L Stainless Steel™, which enhances electropolishing, and corrosion resistance.
- Standard surface finish 5 micro inch Ra (.13 micro meter).
- Internally threadless and springless.
- Fully field serviceable seat (special tool required).
- Fully functional for pressure ranges from vacuum to 125 psig for Air Operated valves and 250 psig for manual valves.
- Change from air operated actuator to lever or visa versa without intruding into wetted area.

materials of construction

Wetted

Body . . . . . "VeriClean", Veriflo's custom high purity type 316L Stainless Steel™
Seat . . . . . PCTFE, optional Vespel® or PEEK™
Diaphragm . . . . . Elgiloy® or equivalent

Non-wetted

Nut . . . . . Stainless Steel
Cap . . . . . Stainless Steel

operating conditions

Maximum operating pressure:
AOP . . . . . 125 psig (8.6 barg)
Manual . . . . . 250 psig (17 barg)
Minimum operating pressure . . . . . Vacuum
AOP Actuation . . . . . 75 psig (5 barg) nominal
Temperature . . . . . -40°F to 150°F (-40°C to 66°C)
Bake out . . . . 250°F (121°C) in the open position

functional performance

Flow capacity:
Standard Seal
AOP . . . . . C_V = .25
1/4 Turn manual. . . . . C_V = .20
(SEMI Flow Coefficient Test# F-32-0998)

Design Leak Rate:
Outboard . . . . . $1x10^{-9}$ scc/sec He
Inboard . . . . . $2x10^{-10}$ scc/sec He
Across seat . . . . . $1x10^{-9}$ scc/sec He

Design Proof Pressure:
AOP . . . . . 188 psig (13 barg)
1/4 Turn Manual . . . . . 375 psig (26 barg)

Design Burst Pressure:
AOP . . . . . 375 psig (26 barg)
1/4 Turn Manual . . . . . 750 psig (52 barg)

standard connections

SEMI Modular Interface

surface finishes

Standard Ra . . . . . 5 micro inch (.13 micro meter) or less

Parker

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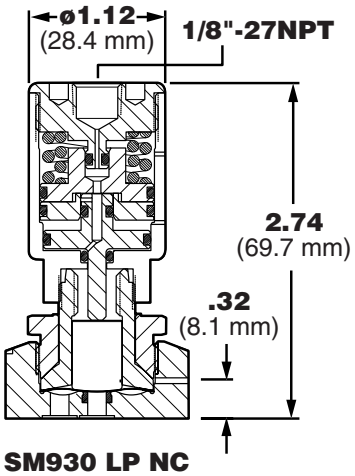
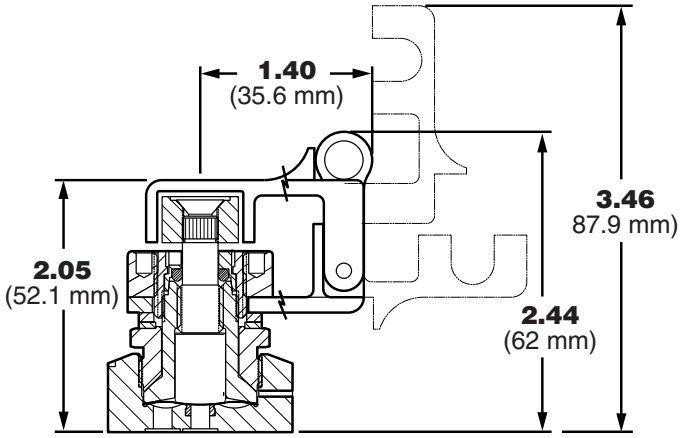
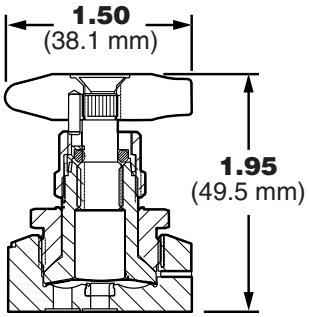
Dimensional Drawings 1-1/2"



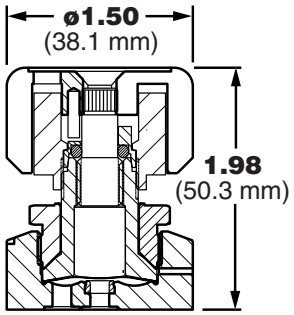
SM930 LP NC



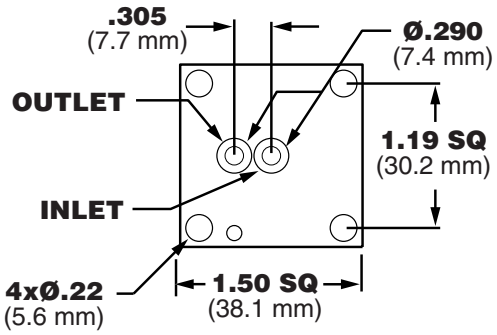
SM930 M LK



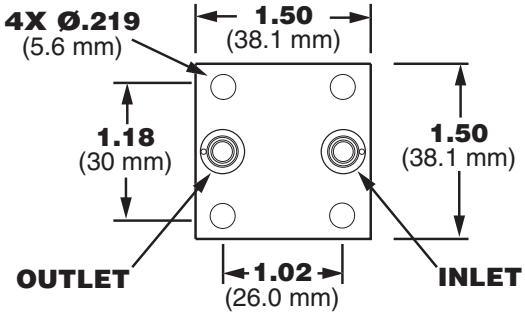
SM930 M
Standard Mini-Lever Color Is Blue



SM930 I
Standard Indicating Knob Color Is Black



1-1/2" Standard C-Seal (10)



1-1/2" W-Seal (60)

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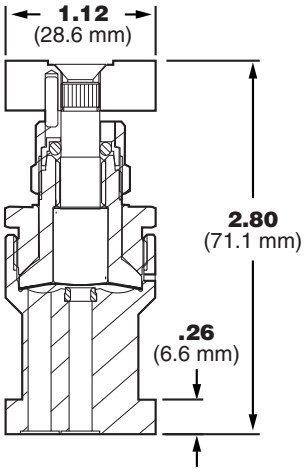
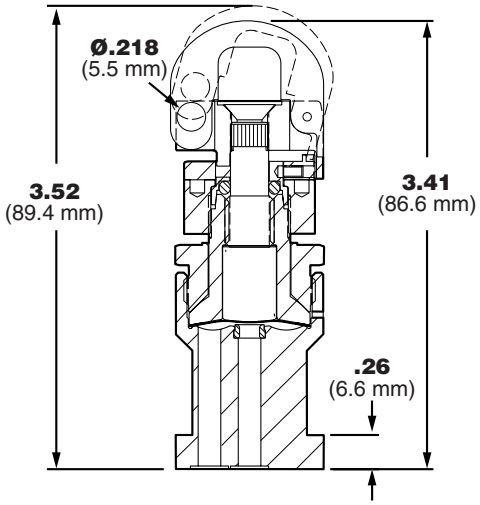
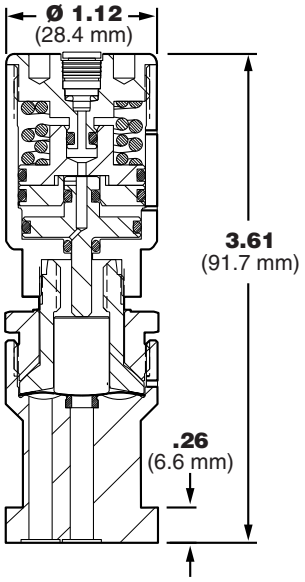
Dimensional Drawings 1-1/8"



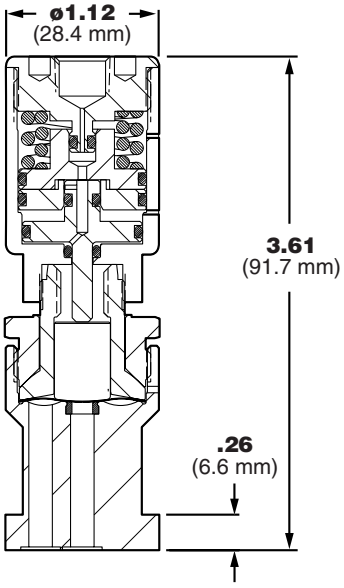
SM930M_2
Standard Mini-Lever Color Is Blue



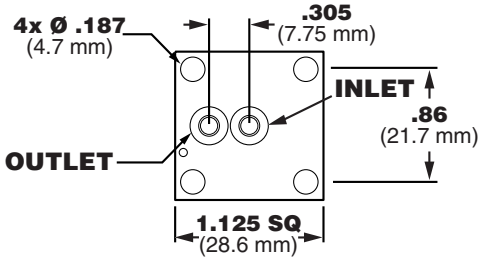
SM930M_2LK
Standard Loto-Mini-Lever Color Is Red



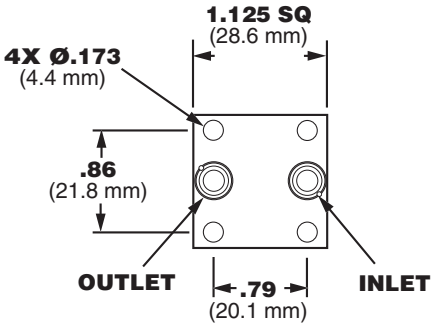
SM930LP1NC_2
New Integral Cartridge Fitting Connects
To 1/8" O.D. Plastic Tubing



SM930LPNC_2



1-1/8" Standard C-Seal (10)



1-1/8" W-Seal (60)

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Ordering Information

SM930 M S 10 VESP

BASIC SERIES
SM930

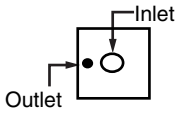
TYPE
G	=	Toggle
I	=	Indicating Handwheel
M	=	Mini-Lever
LPNC	=	Air Operated Normally Closed
LPNO	=	Air Operated Normally Open
LP1NC	=	Air Operated Normally Closed with 1/8" O.D.Integral Cartridge Fitting
LP1NO	=	Air Operated Normally Open with 1/8" O.D.Integral Cartridge Fitting

MATERIAL
S = 316L Stainless Steel

OPTIONAL FEATURES
LK	=	LockOut-TagOut*
VESP	=	Vespel® Seat**
PEEK	=	PEEK™ Seat

Consult Factory For Additional Handle Colors

BASE SIZE
	=	1-1/2" Interface
2	=	1-1/8" Interface

PORTING


10	=	= 2 Port, Standard C-Seal
20	=	= 3 Port, Standard C-Seal
30	=	= 3 Port, Standard C-Seal
60	=	= "W" Seal

* **LK includes LockOut-TagOut bracket for G-Type Valve; LOTO Clamp or Lever for M type Valve**

** **Recommended for Nitrous Oxide (N_20) Service**

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SM955 Valve 1-1/2" Diaphragm Valve

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the Surface Mount 955 Air Operated and Manual Diaphragm Valve. The SM955 provides exceptional performance for today's modular surface mount systems that have high flow requirements.

features

- Meets SEMI Modular Interface.
- Standard Seal: 0.30 C_V for AOP style, 0.25 C_V for 1/4 turn manual style. High Flow Seal: 0.50 C_V for AOP style, 0.35 C_V for 1/4 turn style valves.
- "VeriClean" low sulfur high purity 316L VAR Stainless Steel™, which enhances electropolishing, and corrosion resistance.
- Standard surface finish 5 micro inch Ra (.13 micro meter).
- Internally threadless and springless.
- Fully field serviceable seat (special tool required).
- Fully functional for pressure ranges from vacuum to125 psig for Air Operated valves and 250 psig for manual valves.
- Change from air operated actuator to lever or visa versa without intruding into wetted area.

materials of construction

Wetted

Body. . . . . "VeriClean", Veriflo's custom high purity Type 316L VAR Stainless Steel™
Seat . . . . . PCTFE, optional Vespel®, or PEEK™
Diaphragm . . . . . Elgiloy® or equivalent

Non-Wetted

Nut . . . . . 316L Stainless Steel
Cap . . . . . 316L Stainless Steel

operating conditions

Maximum operating pressure:
AOP . . . . . 125 psig (8.6 barg)
Manual . . . . . 250 psig (17 barg)

Minimum operating pressure . . . . . Vacuum
AOP Actuation . . . . . 75 psig (5 barg) nominal
Temperature. . . . . –40°F to 150°F (–40°C to 66°C)
Bake out . . . . 250°F (121°C) in the open position

functional performance

Flow capacity:
Standard Seal
AOP . . . . . C_V = .30
1/4 Turn Manual . . . . . C_V = .25

High Flow Seal
AOP . . . . . C_V = .50
1/4 Turn Manual . . . . . C_V = .35
(SEMI Flow Coefficient Test# F-32-0998)

Design Leak Rate:
Outboard. . . . . 1 x 10^{-9} scc/sec He
Inboard . . . . . 2 x 10^{-10} scc/sec He
Across seat. . . . . 4 x 10^{-9} scc/sec He

Design Proof Pressure:
AOP. . . . . 188 psig (13 barg)
1/4 Turn Manual . . . . . 375 psig (26 barg)

Design Burst Pressure:
AOP. . . . . 375 psig (26 barg)
1/4 Turn Manual . . . . . 750 psig (52 barg)

standard connections

SEMI modular interface

internal volume

.70 cc

surface finishes

Standard Ra. . . . . 5 micro inch (.13 micro meter) or less

approximate weight

.70 lbs (.32 kg)

Parker

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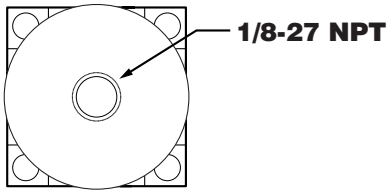
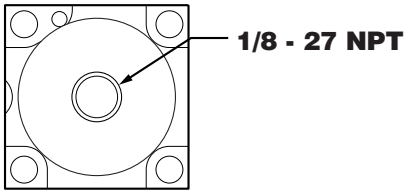
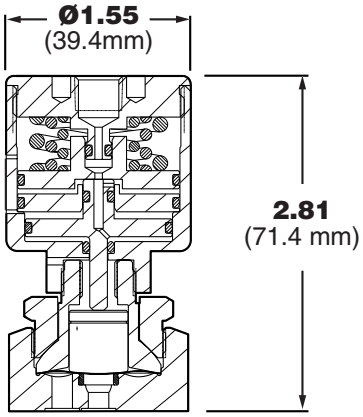
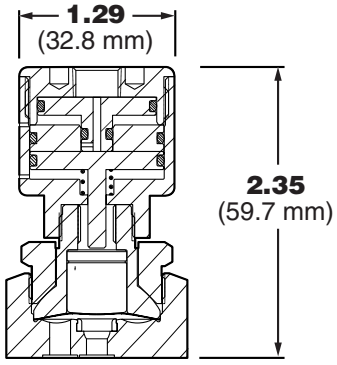
Dimensional Drawings



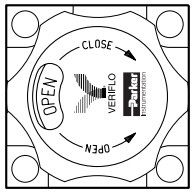


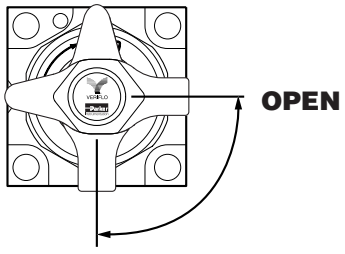


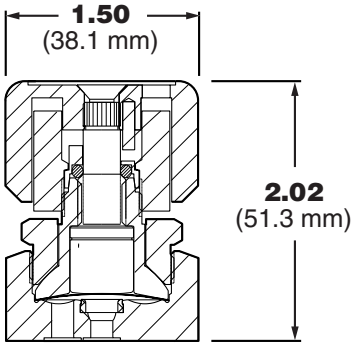
SM955 LP NC



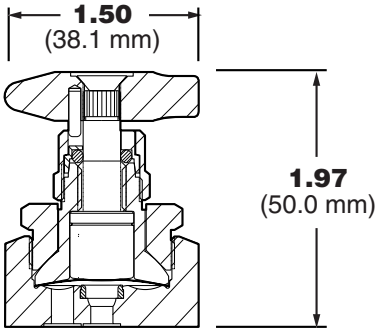
SM955 LP N0







SM955 I



SM955 M

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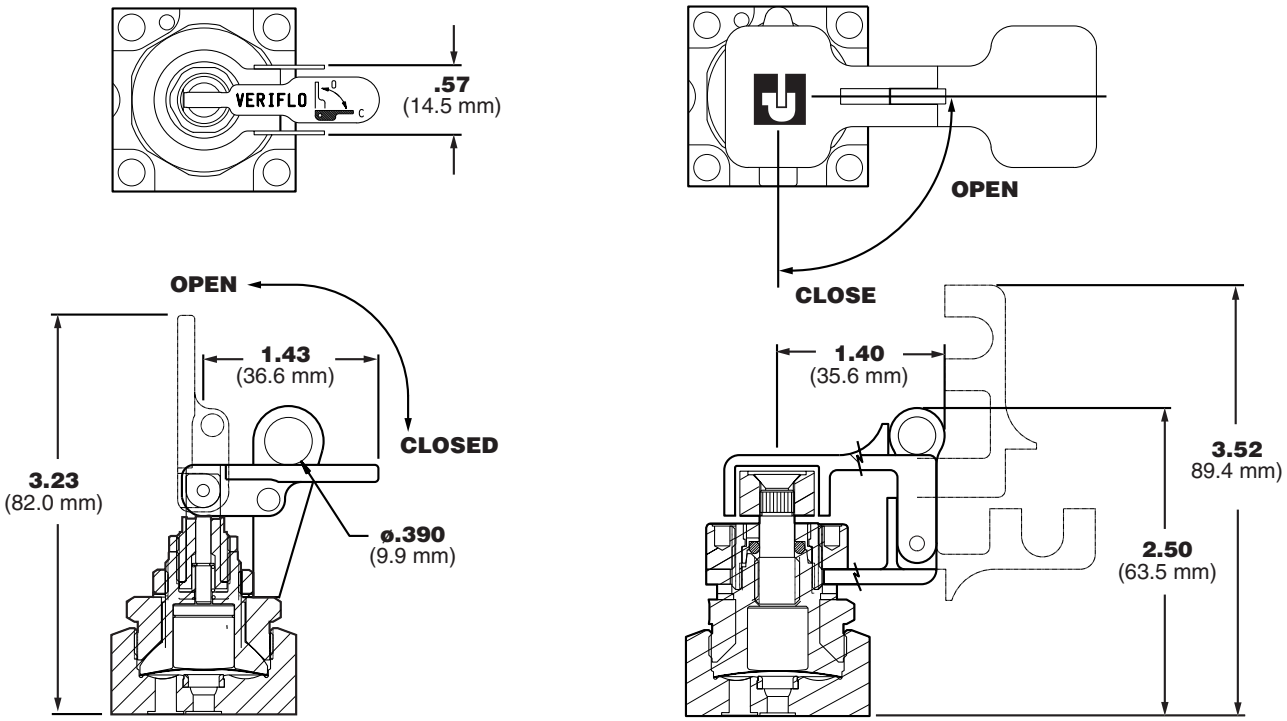
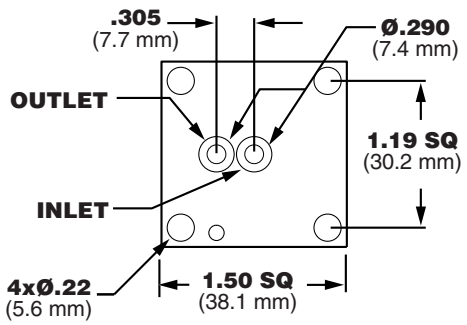
SM955 Valve 1-1/2"

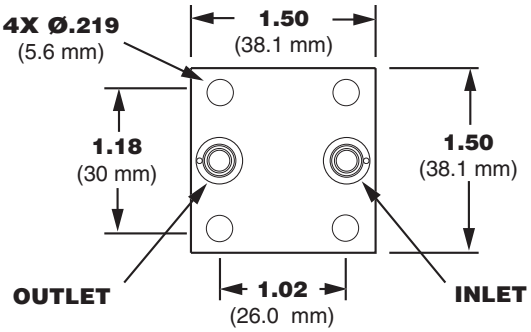
Dimensional Drawings



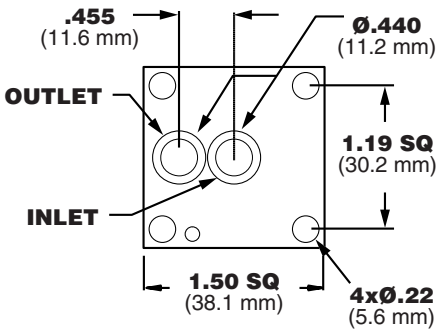
SM955 G LK **SM955 M LK**



1-1/2" Standard C-Seal (10)



1-1/2" W Seal (60)



1-1/2" High Flow C-Seal (11)

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Ordering Information

SM955 M S 10 VESP

BASIC SERIES
SM955

TYPE
G = Toggle
M = Mini-Lever
LPNC = Air Operated Normally Closed
LPNO = Air Operated Normally Open

MATERIAL
S = 316L VAR Stainless Steel

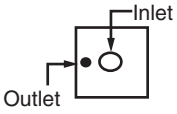
* **LK includes LockOut-TagOut bracket for G-Type Valve or LOTO Clamp for M type Valve**

** **Recommended for Nitrous Oxide (N_20) Service**

Vespel® is a registered trademark of DuPont.
Elgiloy® is a registered trademark of Elgiloy Company.
PEEK™ is a trademark of Victrex plc.

OPTIONAL FEATURES
LK = LockOut-TagOut*
VESP = Vespel® Seat**
PEEK = PEEK™ Seat

Consult Factory For Additional Handle Colors

PORTING


10 = = 2 Port, Standard C-Seal
11 = = 2 Port, High Flow C-Seal
20 = = 3 Port, Standard C-Seal
21 = = 3 Port, High Flow C-Seal
30 = = 3 Port, Standard C-Seal
60 = = "W" Seal

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VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the 930 valve for use in ultra high purity applications.

features

- "VeriClean", Veriflo's low sulfur high purity 316L VAR Stainless Steel™, which enhances electropolishing, welding and corrosion resistance.
- Standard surface finish 5 micro inch Ra (.13 micro meter).
- Internally threadless and springless.
- Fully functional from vacuum to 125 psig (for Air Operated Actuator), 250 psig for manual versions.
- Aerodynamic, fully swept flow passages.
- Minimum particle generation and particle entrapment areas.
- Change from air operated actuator to lever or visa versa without intruding into wetted area.
- 100% Helium leak tested.
- Maintains key dimensions of Veriflo's 944 and 945 valves.

materials of construction

Wetted

Body . . "VeriClean", Veriflo's custom high purity type 316L VAR Stainless Steel™, Hastelloy C-22®
Seat . . . . . PCTFE, optional Vespel®
Diaphragm . . . . . Elgiloy® or equivalent

Non-wetted

Nut. . . . . 316L Stainless Steel
Cap. . . . . 316L Stainless Steel

operating conditions

Maximum operating pressure:
AOP. . . . . 125 psig (8.6 barg)
Manual . . . . . 250 psig (17 barg)
Minimum operating pressure. . . . . Vacuum
AOP Actuation . . . . . 75 psig (5 barg) nominal
Temperature . . . . . 0°F to 150°F (-18°C to 66°C)
Bake out . . . . 250°F (121°C) in the open position

functional performance

Flow capacity:
AOP . . . . . C_V = .3
Lever. . . . . C_V = .22

Design Leak Rate:
Outboard . . . . . less than $1x10^{-9}$ scc/sec He
Inboard . . . . . less than $2x10^{-10}$ scc/sec He
Across seat . . . . . less than $1x10^{-9}$ scc/sec He

Design Proof Pressure:
AOP . . . . . 188 psig (13 barg)
Manual . . . . . 375 psig (26 barg)

Design Burst Pressure:
AOP . . . . . 375 psig (26 barg)
Manual . . . . . 750 psig (52 barg)

standard configuration

Any configuration of FS male and/or female fittings.
1/4" gland to gland length . . . . . 2.78± .02 in. (70.6± .05 mm)
Optional. . . . . 3.06± .02 in. (77.7 ± .05 mm)
1/2" gland to gland length . . . . . 4.14 ± .02 in. (105.2 mm)
1/4" tube stubs inlet and outlet
End to end length. . . 1.75±.02 in. (44.5± .05 mm)
Optional. . . . . 1.61±.02 in. (40.7± .05 mm)
3/8" & 1/2" tube stubs inlet and outlet

End to end length. . . 2.24±.02 in. (56.9± .05 mm)
Other configurations available including as many as five ports.

See Valve Selection Guide.

internal volume

2.64 cc (including face seal fittings)

surface finish

Standard Ra . . . . . 5 micro inch (.13 micro meter) or less

approximate weight

1.75 lbs. (.80 kg)

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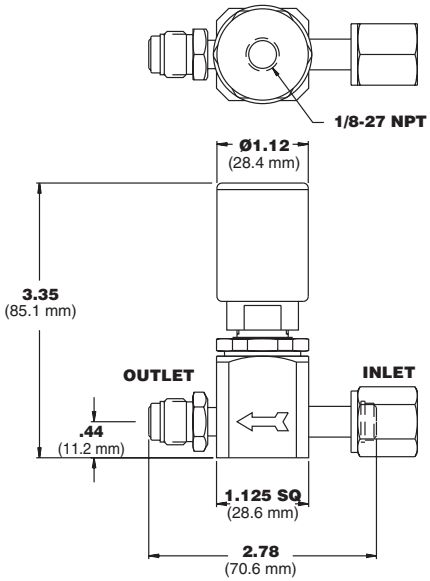
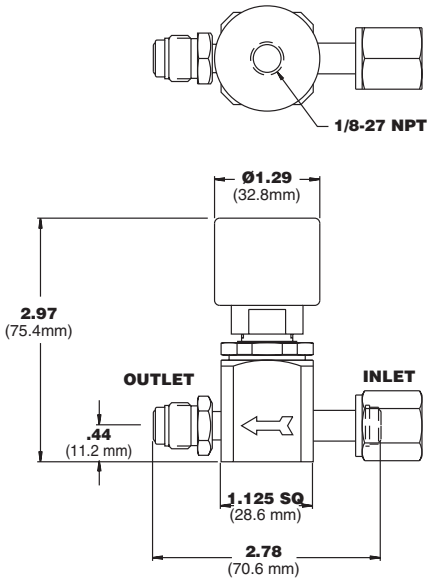
Dimensional Drawings

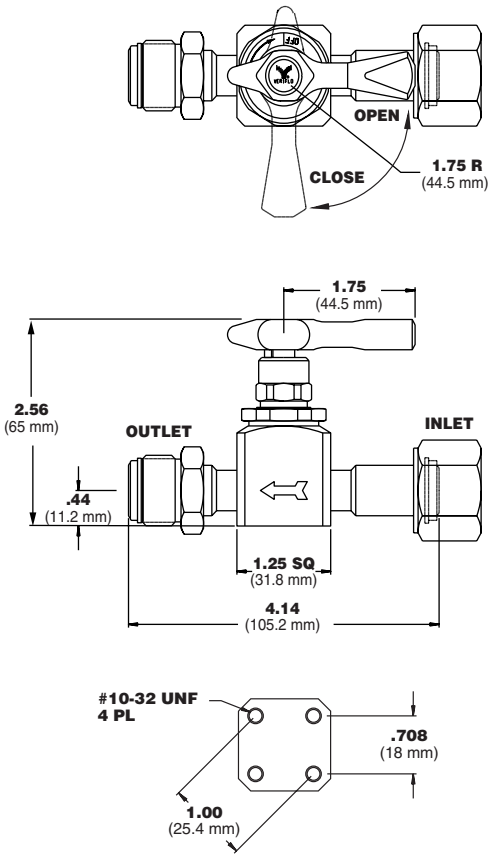
930 AOP LP NC



930 AOP LP NO

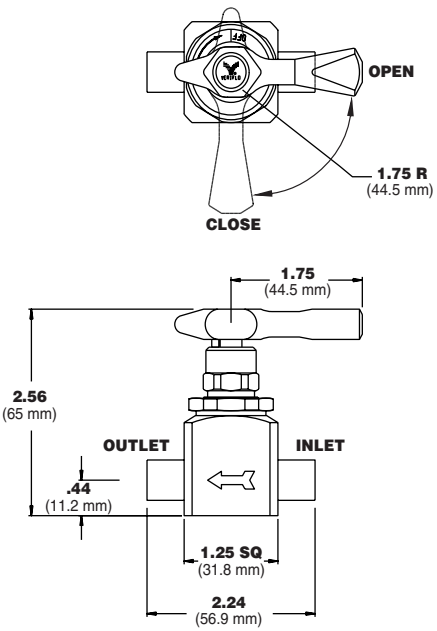


930 L FS8



Standard Mounting Hole Pattern

930 L TS8



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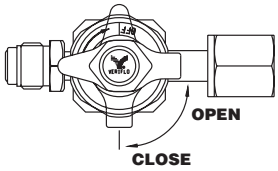
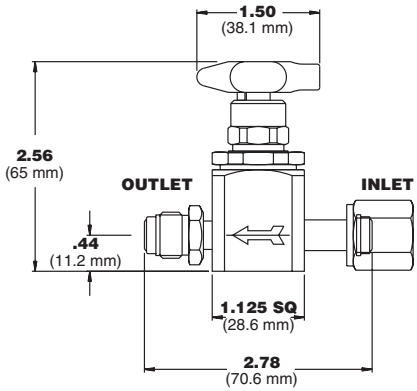
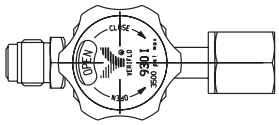
Dimensional Drawings

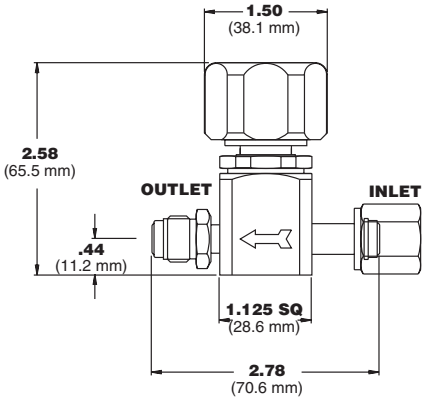
930 M



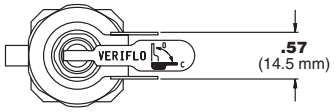


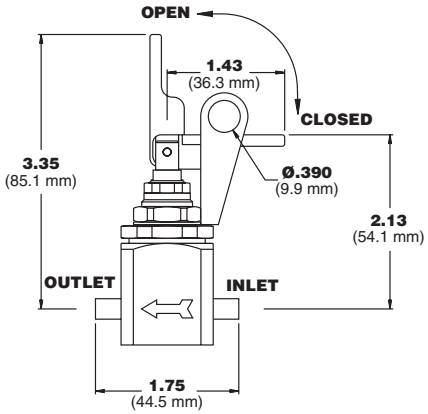
930 I

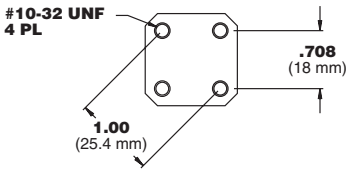




930 G LK BRACKET

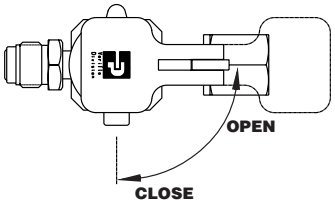


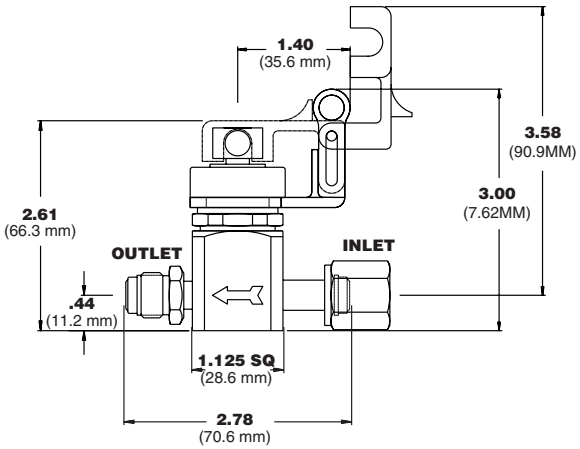




Standard Mounting Hole Pattern

930 M LK CLAMP





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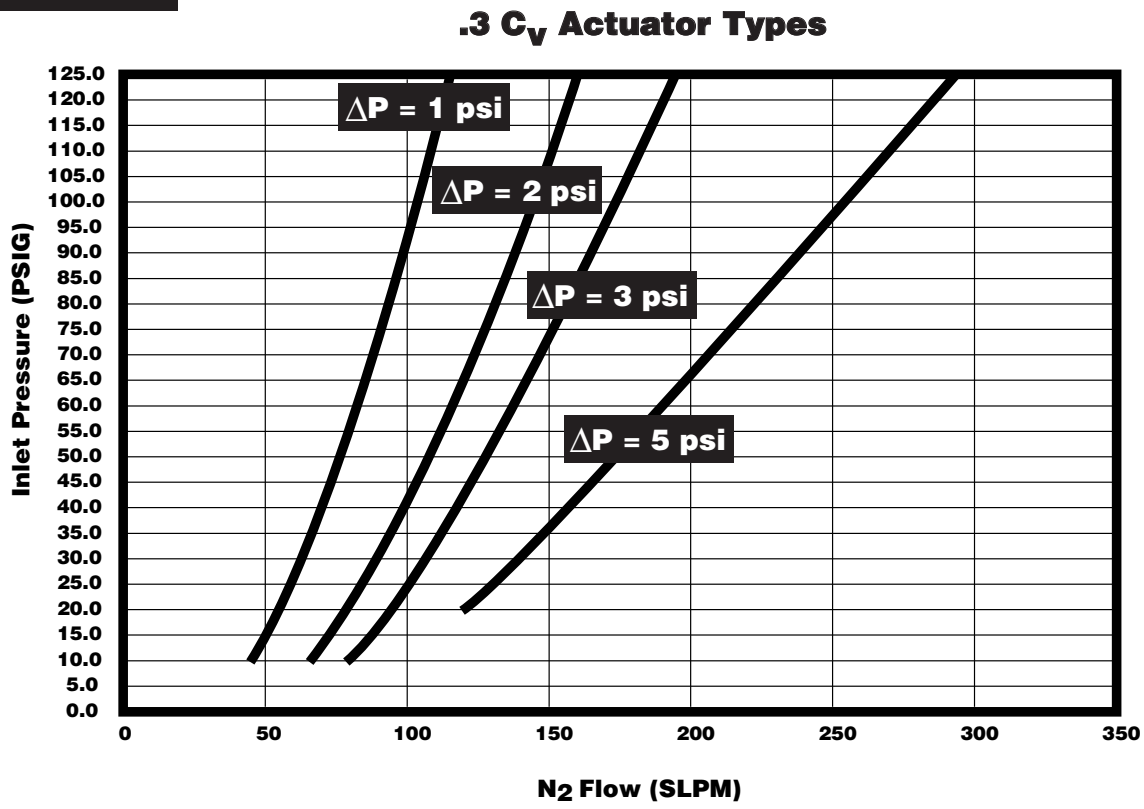
Flow Curve



Ordering Information

930 AOPLPNC S FSFM VESP

BASIC SERIES
930

TYPE
AOPLPNC = Air Operated, Low Pressure, Normally Closed
AOPLPNO = Air Operated, Low Pressure, Normally Open
G = Toggle
I = Indicating Handwheel
L = Lever
M = Mini Lever
S = Spin Handwheel

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

OPTIONAL FEATURES
VESP = Vespel® Seat (For N_20 use)
LK = LockOut-TagOut **
PM = Panel Mount ***
2.3 = 1/4" Fixed Male Face Seal (2 Port Only)

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
TS = 1/4" Tube Stub
TS6 = 3/8" Tube Stub
TS8* = 1/2" Tube Stub

*** 1/2" Connections use larger size body, please see dimensional drawings**
**** LockOut-TagOut Clamp for M Type Valves**
LockOut-TagOut Bracket for G Type Valves
***** Not available on I and AOP versions**

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.
Flexlay® is a registered trademark of Flexlay Company.

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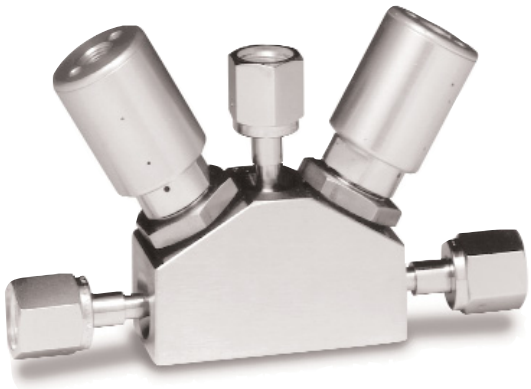
QUANUM 930Y

Manifold Valve

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the 930Y, a diaphragm valve engineered to meet the specific requirements of semiconductor OEM tool manufacturers.

The 930Y is a sophisticated design with Veriflo's proven ultra high purity, low internal volume components. Space savings and fewer welds make the 930Y ideal for process control and purge systems.



features

- High cycle life.
- Ideal for valve manifold boxes (VMB).
- Ultra high performance.
- Internally threadless and springless.
- NO (normally open),NC (normally closed), or manual actuators available.
- Fully functional under vacuum conditions.

materials of construction

Wetted
Body . . . . . "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel™
Seat . . . . . PCTFE (optional Vespel®, PEEK™)
Diaphragm . . . . . Elgiloy® or equivalent

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:
AOP . . . . . 125 psig (8.6 barg)
Manual . . . . . 250 psig (17 barg)

Minimum operating pressure . . . . . Vacuum
AOP Actuation . . . . . 75 psig (5 barg) nominal
Temperature . . . . . 0°F to 150°F (-18°C to 66°C)
Bake out. . . . . 250°F (121°C) in the open position

functional performance

Flow capacity:
AOP . . . . . C_V = .3
Lever . . . . . C_V = .22
(SEMI Flow Coeffiecient Test #F-32-0998)

Design Leak Rate:
Outboard . . . . . less than $1x10^{-9}$ scc/sec He
Inboard . . . . . less than $2x10^{-10}$ scc/sec He
Across seat . . . . . less than $1x10^{-9}$ scc/sec He

Design Proof Pressure:
AOP . . . . . 188 psig (13 barg)
Manual . . . . . 375 psig (26 barg)

Design Burst Pressure:
AOP . . . . . 375 psig (26 barg)
Manual . . . . . 750 psig (52 barg)

surface finishes

Standard Ra . . . . . 10 micro inch (.25 micro meter) or less
Optional Ra . . . . . EV = 5 micro inch (.13 micro meter) or less

standard connections

Any combination of FS male and / or female fittings:

1/4" Gland to gland length. . . . . 4.69 or 4.06 (see dimensional drawing)

1/4" tube stubs inlet and outlet available:
End to end length 3.62

internal volume

4.26 cc

approximate weight

2.1 lbs (0.95 kgs)

Parker

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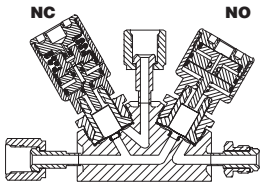
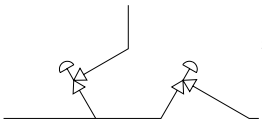
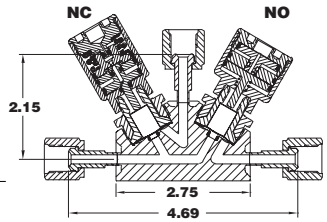
Dimensional Drawings



930Y1NO/NCFSMFFA





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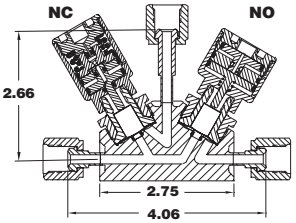

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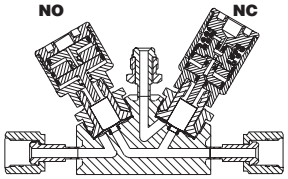
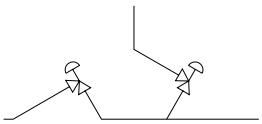
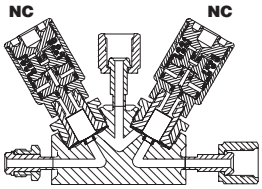
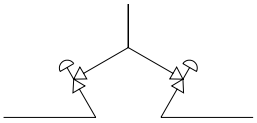


930Y2NC/NOFSFMFA

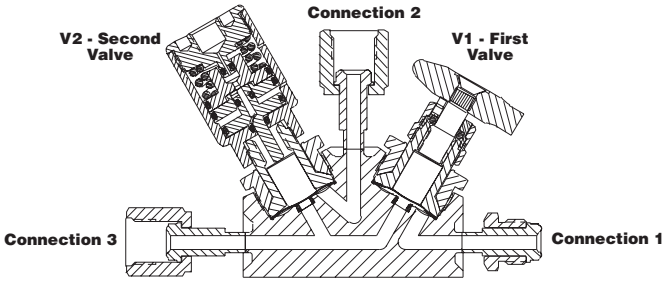




930Y3NC/NCFSFFMA



Ordering Example



930Y1M/NCFSMFFA

Ordering Information

930Y 1 NO/NC FS MMF A

BASIC SERIES
930Y

FLOW PATH
1 = Down Stream Purge
2 = Up Stream Purge
3 = Common

TYPE (V1/V2)
I = Indicating Handwheel
M = Mini Lever
NC = AOP LP Normally Closed
NO = AOP LP Normally Open

PORT STYLE
FS = 1/4" Face Seal
TS = 1/4" Tube Stub

*** Recommended for Nitrous Oxide (N_20) Service.**

Elgiloy® is a registered trademark of Elgiloy Company.
Vespel® is a registered trademark of DuPont Company.
PEEK™ is a registered trademark of Pictrex plc.

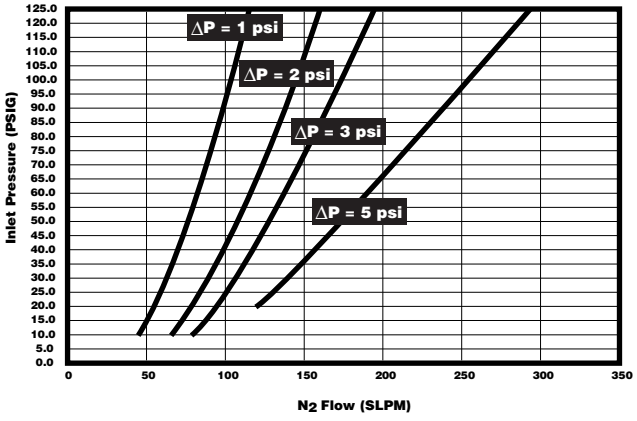
DIMENSIONS
A = 4.69 x 2.15
B = 4.06 x 2.66 (FSF or TS only)

OPTIONAL FEATURES
RD = Red Lever
BK = Black Lever
PEEK = PEEK™ Seats
VESP = Vespel® Seats*

PORT CONFIGURATION
M = Face Seal Male
F = Face Seal Female
Blank = Tube Stub

Flow Curve

.3 C_V Actuator Types



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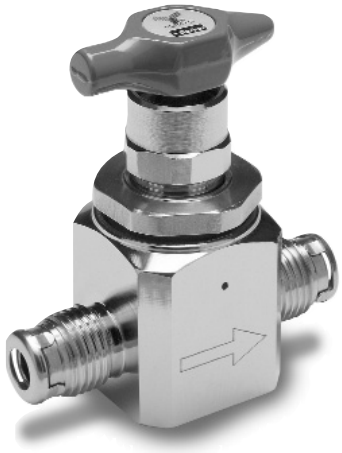
QUANTUM 945 Valve

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the Quantum 945 Valve. The 945 was designed specifically for semiconductor process control and have all of the features and benefits of the 944 Series with reduced internal volume and body size.

A unique feature of the 945 is the machined-on tube stubs, which allows for improved dimensional control.



features

- "VeriClean", low sulfur high purity 316L Stainless Steel™ enhances electropolishing, welding and corrosion resistance.
- Standard Surface Finish is 5 micro inch Ra.
- Machined on tube stubs or fixed male Face Seal connections.
- Fully field serviceable seat can be replaced without special tools.
- Interchangeable actuators without breaking into wetted area.
- Internally threadless and springless.
- NO (normally open) or NC (normally closed) actuator available.
- Fully functional under vacuum conditions.
- Unique patented compression member which loads the seal uniformly without the need for threaded components or

materials of construction

Wetted

Body. . . . "VeriClean", Veriflo's custom high purity type 316L Stainless Steel™, optional Hastelloy C-22®
Seat . . . . . PCTFE, optional Vespel®
Diaphragm . . . . . Elgiloy® or equivalent
Compression member . . . . . "VeriClean", Veriflo's custom high purity type 316L Stainless Steel, optional Hastelloy C-22®

Non-wetted

Nut . . . . . 316L Stainless Steel
Cap . . . . . 316L Stainless Steel

operating conditions

Maximum operating pressure:
AOPHP and Manual . . . . . 3500 psig (240 barg)
AOPLP and Toggle . . . . . 125 psig (8.6 barg)
For oxygen . . . . . Refer to CGA G-4.4 Industrial Practices for Gaseous Oxygen

Minimum operating pressure. . . . . Vacuum

Actuation pressure:
AOPLP. . . . . 60 to 120 psig (4 barg to 8.3 barg)
AOPHP . . . . . 75 psig nominal (5 barg)
Temperature. . . . . -40°F to 150°F (-40°C to 66°C)
Bakeout . . . . . 250°F (121°C) in the open position

functional performance

Flow capacity:
AOP,G,S,I . . . . . C_V= 0.25
Lever. . . . . C_V= 0.18
(SEMI Flow Coefficient Test #F-32-0998)

Design Leak Rate:
Outboard. . . . . 1 x 10^{-9} scc/sec He
Inboard . . . . . 2 x 10^{-10} scc/sec He
Across Seat . . . . . 4 x 10^{-9} scc/sec He

Design Proof Pressure:
AOPHP and Manual . . . . . 5250 psig (362 barg)
AOPLP and Toggle . . . . . 188 psig (13 barg)

Design Burst Pressure:
AOPHP and Manual . . . . . 10500 psig (724 barg)
AOPLP and Toggle . . . . . 375 psig (26 barg)

standard connections

Any combination of FS male and / or female fittings or tube stubs including as many as five ports.

See Valve Selection Guide

interrnal volume

1.26 cc (no glands); 2.7 cc (including glands)

surface finishes

5 micro inch Ra (.13 micro meter) or less

approximate weight

0.9 lbs (0.42 kgm)

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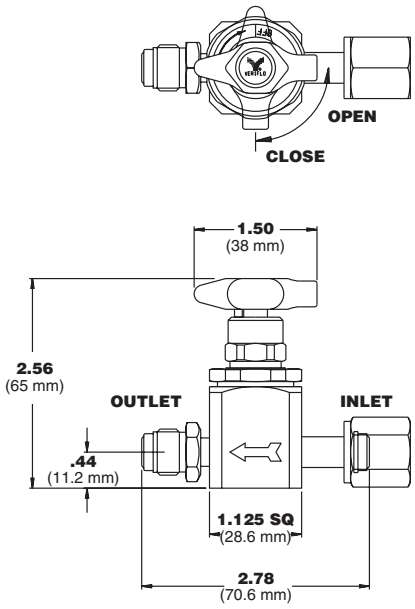
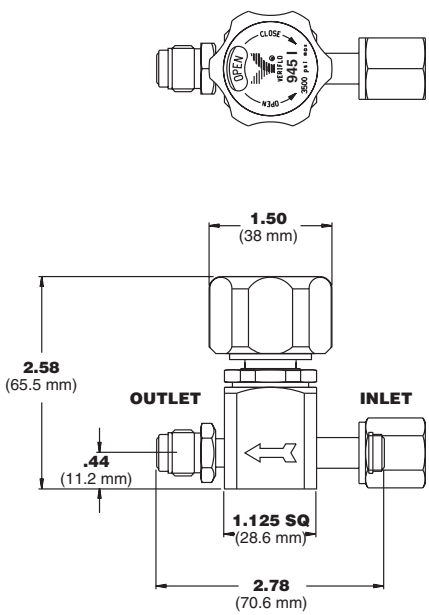
QUANUM 945 Valve

Dimensional Drawing

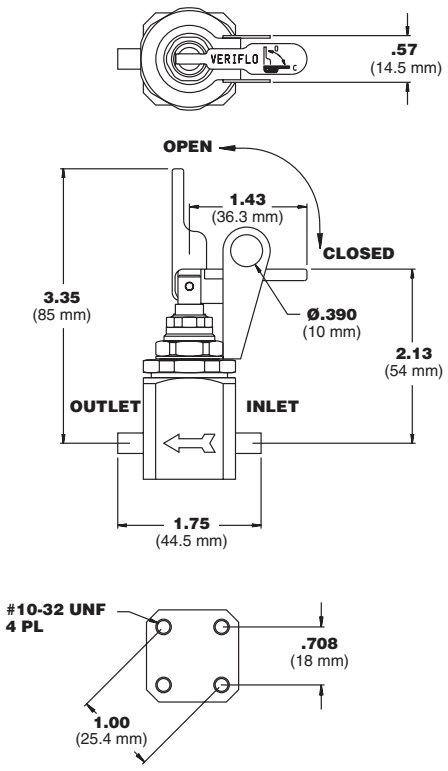
945M



945I

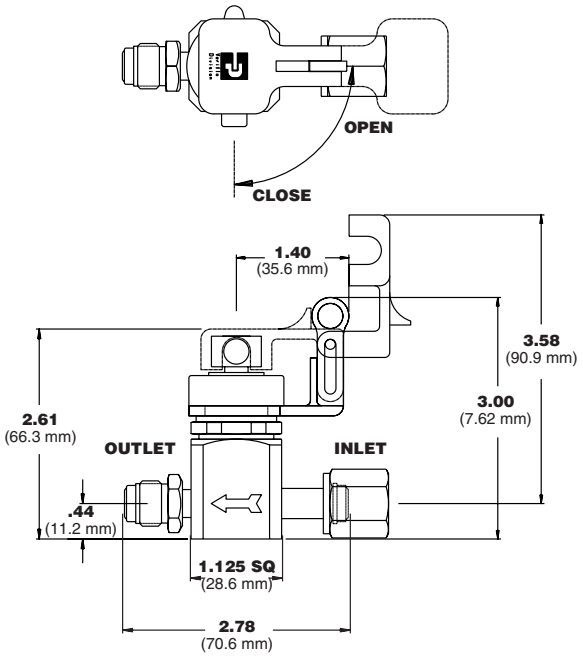


945GLK BRACKET



Standard Mounting Hole Pattern

945MLK CLAMP



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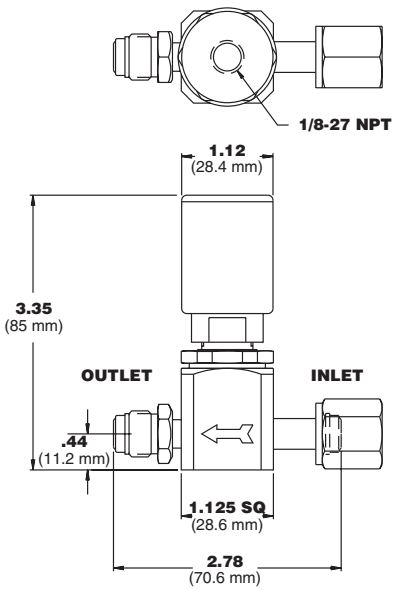
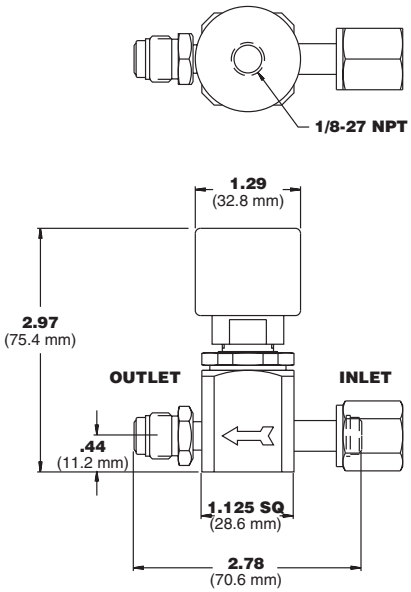
Dimensional Drawing

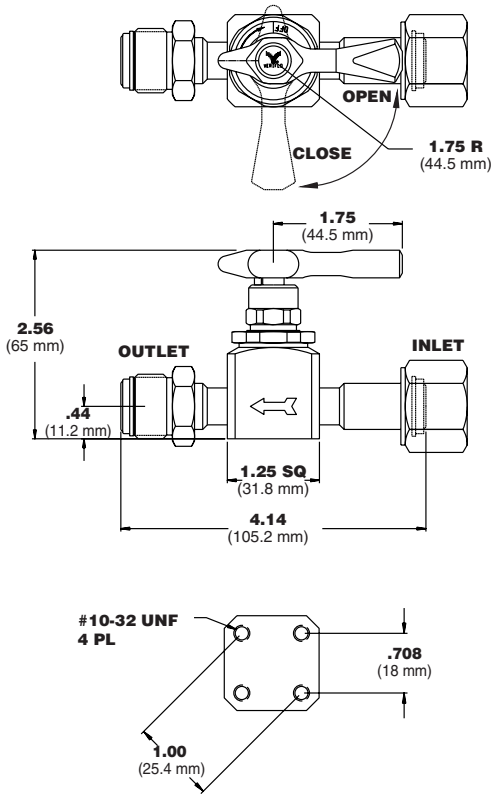
945AOPLPNC



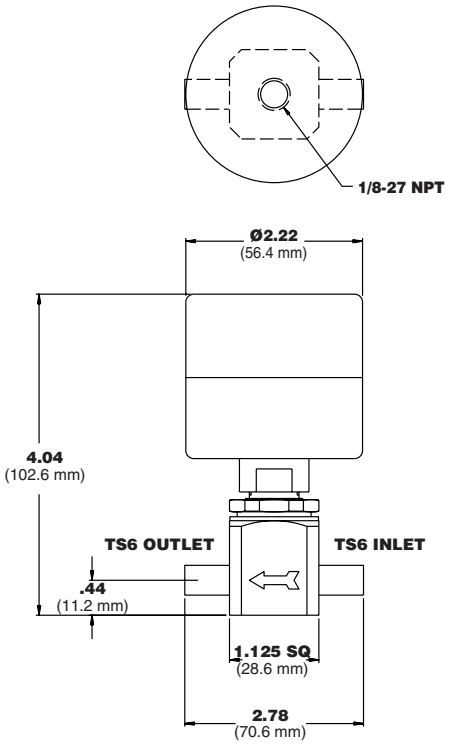
945AOPLPNO



945LSFS8FM



945AOPHPNCSTS6



Standard Mounting Hole Pattern

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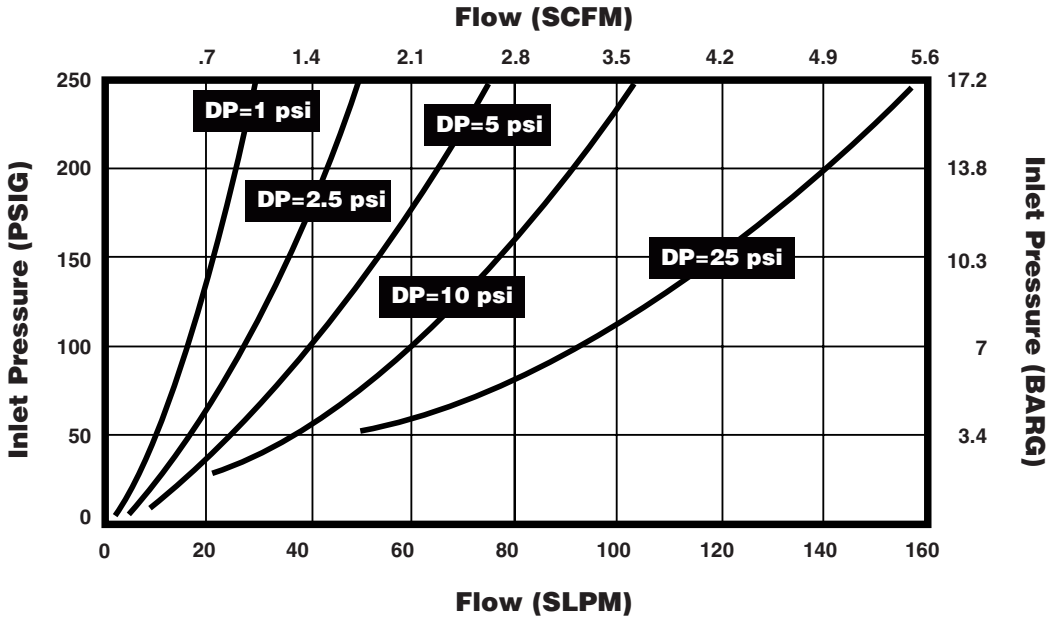
Flow Curve



Ordering Information

945 L S FSMM VESP

BASIC SERIES
945

TYPE
AOPHPNC	=	Air Operated, High Pressure, Normally Closed
AOPLPNC	=	Air Operated, Low Pressure, Normally Closed
AOPLPNO	=	Air Operated, Low Pressure, Normally Open
G	=	Toggle
I	=	Indicating Handwheel
L	=	Lever
M	=	Mini Lever
S	=	Handwheel

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

OPTIONAL FEATURES
LK	=	LockOut-TagOut**
PM	=	Panel Mount***
TH	=	Hastelloy C-22® Trim (Compression Member)
VESP	=	Vespel® Seat****
BK	=	Black Lever or Handwheel
BU	=	Blue Indicating Handwheel
2.3	=	1/4" Fixed Male Face Seals (2 ported only)

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
TS	=	1/4" Tube Stubs
TS6	=	3/8" Tube Stubs
TS8♦	=	1/2" Tube Stubs

*** 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 Type Valves**
****** Recommended for Nitrous Oxide (N_20) Service**
♦ 1/2" Connections Use Larger Body Size, Please See Dimensional Drawings

Note: See Valve Selection Guide for multiple porting selections.

Vespel® is a registered trademark of DuPont Company.
PEEK™ is a registered trademark of Victrex plc.
Elgiloy® is a registered trademark of Elgiloy Company.
Hastelloy C-22® is a registered trademark of Haynes International, Inc.

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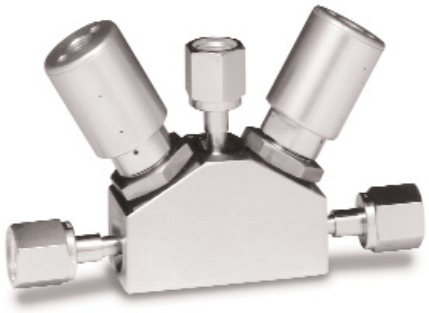
QUANUM 945Y

High Purity Manifold Valve

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the 945Y. The 945Y is a custom built high-purity diaphragm valve manifold, engineered to meet the specific requirements of semiconductor OEM tool manufacturers.

The 945Y is a sophisticated design with Veriflo's proven ultra high purity, low internal volume components. Space savings and fewer welds make the 945Y ideal for process control and purge systems.



features

- High cycle life.
- Ideal for valve manifold boxes (VMB).
- Fully field serviceable seat can be replaced without special tools.
- Ultra high performance.
- Internally threadless and springless.
- NO (normally open),NC (normally closed), or manual actuators available.
- Fully functional under all vacuum conditions.
- Unique patented compression member which loads the seal uniformly without the need for threaded component or crimping operations.

materials of construction

Wetted

Body . . . . . "VeriClean", Veriflo's custom high purity Type 316L VAR Stainless Steel™
Seat . . . . . PCTFE,optional Vespel®, PEEK™
Diaphragm . . . . . Elgiloy® or equivalent
Compression memeber . . "VeriClean", Veriflo's custom high purity type 316L VAR Stainless Steel optional 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:
AOPHP and Manual . . . . . 3500 psig (240 barg)
AOPLP and Manual. . . . . 125 psig (8.6 barg)
For oxygen . . . . . Refer to CGA G-4.4 Industrial Practices for Gaseous Oxygen

Minimum operating pressure. . . . . Vacuum

Actuation pressure:
AOPLP. . . . . 60 to 120 psig (4 barg to 8.3 barg)
AOPHP . . . . . 75 psig nominal (5 barg)
Temperature. . . . . -40°F to 150°F (-40°C to 66°C)
Bakeout . . . . . 250°F (121°C) in the open position

functional performance

Flow capacity
Process valve. . . . . C_V 0.25
Purge Valve . . . . . C_V0.17
(SEMI Flow Coefficient Test #F-32-0998)

Design Leak Rate:
Across Seat . . . . . 4 x 10^{-9} scc/sec He
Inboard . . . . . 2 x 10^{-10} scc/sec He
Outboard . . . . . 1 x 10^{-9} scc/sec He

surface finishes

Standard Ra . . . . . 10 micro inch (.25 micro meter) or less

Optional Ra . . . . . EV = 5 micro inch (.13 micro meter) or less

standard connections

Any combination of FS male and / or female fittings:

1/4" Gland to gland length. . . . . 4.69 or 4.06 (see dimensional drawing)

1/4" tube stubs inlet and outlet available:
End to end length:. 3.62

internal volume

4.26 cc

approximate weight

2.1 lbs (0.98 kgm)

Parker

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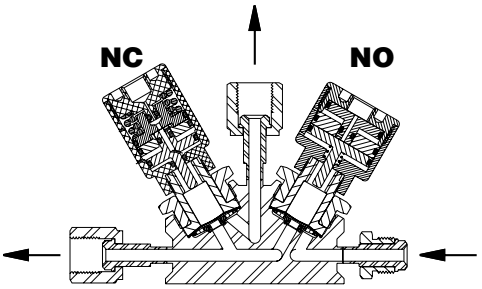
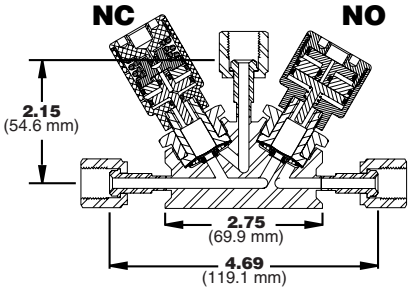
Dimensional Drawings

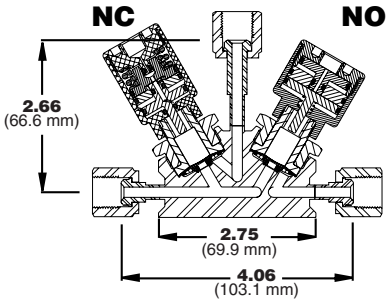
945Y1NO/NCFSMFFA

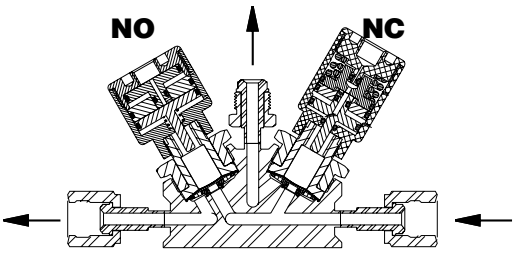


945Y1NO/NCFSFFFA



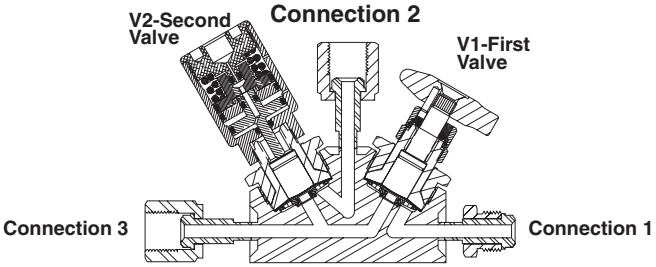
945Y1NO/NCFSFFFB





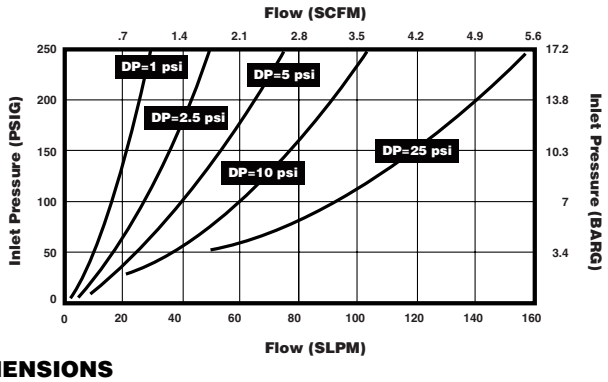
945Y2NC/NOFSFMFA

Ordering Example



945Y1M/NCFSMFFA

Flow Curve



Ordering Information

945Y 1 NO/NC FS MFF TH A

BASIC SERIES
945Y

FLOW PATH
1 = Down Stream Purge
2 = Up Stream Purge
3 = Common

TYPE (V1/V2)
HP= AOPHP Normally Closed*
I = Indicating Handwheel
M = Mini Lever
NC= AOPLP Normally Closed
NO = AO LP Normally Open

* **Note: HP can only be used in combination with HP or M type actuators.**
** **Recommended for Nitrous Oxide (N_20) Service**

DIMENSIONS
A = 4.69 x 2.15
B = 4.06 x 2.66 (FSF or TS Only)

OPTIONAL FEATURES
TH = Hastelloy C-22®
Trim (Compression Member)
PEEK = PEEK™ Seats
VESP = Vespel® Seats**

PORT CONFIGURATION
M = Face Seal Male
F = Face Seal Female

PORT STYLE
FS = 1/4" Face Seal Male

Hastelloy C-22® is a registered trademark of Haynes International, Inc.
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.

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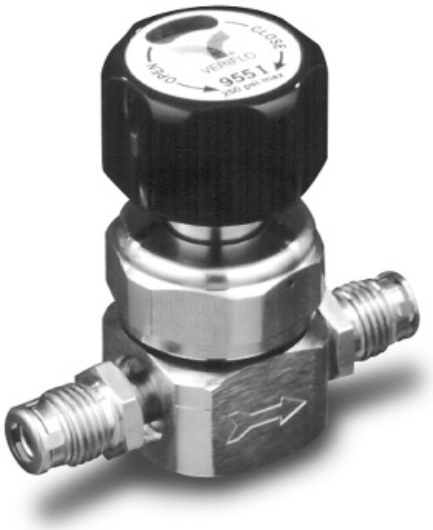
QUANTUM 955

Diaphragm Valve

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the Quantum 955 Manually Operated diaphragm valve. The 955 provides higher flows in an exceptionally clean, compact device.



features

- .55 C_V flow capacity.
- "VeriClean" low sulfur high purity 316L Stainless Steel™, which enhances electropolishing, welding, and corrosion resistance.
- Internally threadless and springless.
- Ideal for low vapor pressure gases.
- Fully functional from vacuum to 250 psig.
- Aerodynamic, smooth flow passages.
- Minimum particle generation and entrapment.
- High cycle life.
- 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 custom high purity Type 316L Stainless Steel™, Hastelloy® C-22
Seat . . . . . PCTFE, optional Vespel®, PEEK™
Diaphragm . . . . . Elgiloy® or equivalent

Non-Wetted

Nut . . . . . 316L Stainless Steel

Cap . . . . . 316L Stainless Steel

operating conditions

Maximum operating pressure . . . . . 250 psig (17.22 barg)
For oxygen . . . . . Refer to CGA G-4.4 Industrial practices for gaseous oxygen

Minimum operating pressure . . . . . Vacuum
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= .55 (SEMI Flow Coefficient Test #F-32-0998)

Design Leak Rate:
Outboard. . . . . 1 x 10^{-9} scc/sec He
Inboard . . . . . 2 x 10^{-10} scc/sec He
Across seat. . . . . 4 x 10^{-9} scc/sec He

Design Proof Pressure . . . . . 375 psig (26 barg)
Design Burst Pressure . . . . . 750 psig (52 barg)

standard connections

Any combination of FS male and/or female fittings:

1/4" Gland to gland length. . . . . 2.96 in. (75.1 mm)
Optional . . . . . 2.78 in. (70.6 mm)

Tube stubs inlet and outlet:
End to end length . . . . . 2.25 in. (57.1 mm)

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

internal volume

3.29 cc (including face seal fittings)

surface finishes

Standard Ra. . . . . 5 micro inch (.13 micro meter) or less

approximate weight

.81 lbs (.36 kg)

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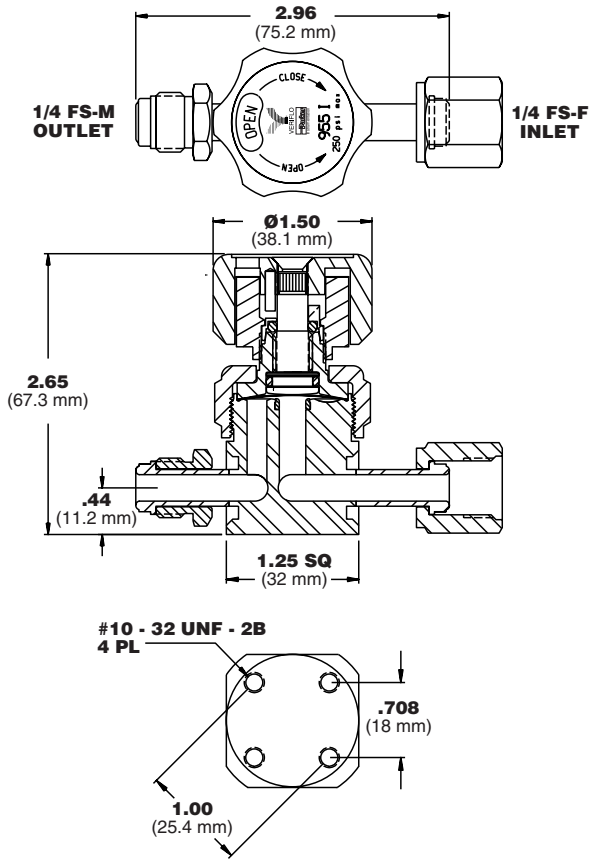
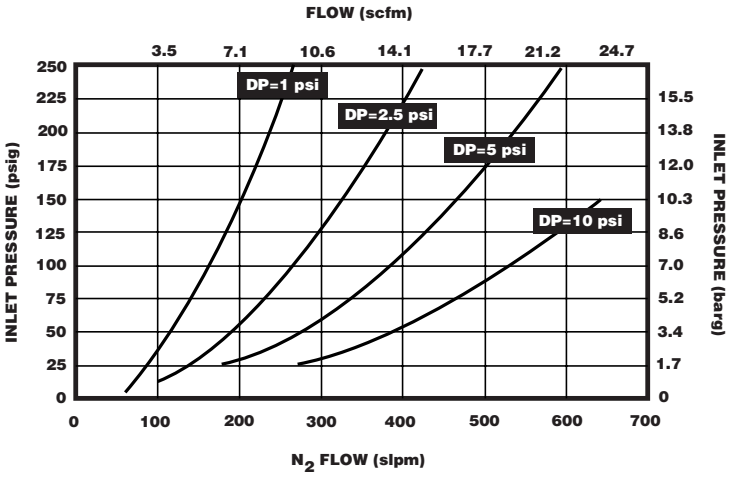
Dimensional Drawing



Flow Curve



Nitrogen gas was used for flow curves.

1/4" FS	2.96" (75.1 mm) STD
1/2" FS8	4.20" (106.7 mm) STD
1/4" TS	2.25" (57.1 mm)
3/8" TS6	2.25" (57.1 mm) STD
1/2" TS8	2.25" (57.1mm) STD
1/4" FS	2.78 (70.6 mm) Optional

Ordering Information

955 L S FSMM VESP

BASIC SERIES
955

TYPE
G = Toggle
I = Indicating Handwheel
L = Lever
M = Mini Lever

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

* **LockOut-TagOut Clamp for M Type Valves**
LockOut-TagOut Bracket for G Type Valves
** **Not available with Indicating Handwheel (I)**
*** **Recommended for Nitrous Oxide (N_20) Service**

Note: See Valve Selection Guide for multiple porting selections.

Hastelloy C-22® is a registered trademark of Haynes International, Inc.
Vespel® is a registered trademark of DuPont 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
LK = LockOut-TagOut*
PM = Panel Mount**
VESP = Vespel® Seat***
PEEK = PEEK™ Seat
2.78 = 2.78" End-To-End (1/4" FS Only)

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
TS = 1/4" Tube Stub
TS6 = 3/8" Tube Stub
TS8 = 1/2" Tube Stub

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QUANTUM 955AOPLP

Diaphragm Valve

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the Quantum 955 Air-Operated diaphragm valve. The 955AOPLP is ideal for low vapor pressure gasses such as WF6 and BCL3.

features

- .55 Cv flow capacity.
- "VeriClean" low sulfur high purity 316L VAR Stainless Steel™, which enhances electropolishing, welding, and corrosion resistance.
- Internally threadless and springless.
- Fully functional from vacuum to 125 psig.
- Ideal for low vapor pressure gasses.
- Aerodynamic, smooth flow passages.
- Minimum particle generation and entrapment.
- High cycle life (including corrosive service).
- 100% Helium leak tested.
- "Hurricane" cleaning, proprietary cleaning process, removes metallic ions, organic films and surface adhering particles.

materials of construction

Wetted

Body . . . . . "VeriClean", Veriflo's custom high purity type 316L VAR Stainless Steel™, Hastelloy C-22®
Seat. . . . . PCTFE, optional Vespel®, PEEK™
Diaphragm. . . . . Elgiloy®or equivalent

Non-Wetted

Nut . . . . . 316L Stainless Steel
Cap . . . . . 316L Stainless Steel
Actuator Housing . . . . . Aluminum

operating conditions

Maximum operating pressure 125 psig (8.6 barg)

Minimum operating pressure . . . . . Vacuum

Temperature . . . . . -40°F to 150°F (-40°C to 66°C)
Bake out . . . . 250°F (121°C) in the open position
Actuator pressure. . . . . 60-120 psig (4-8.3 barg)

functional performance

Flow capacity . . . . . C_V = .55
(SEMI Flow Coefficient Test #F-32-0998)

Design Leak Rate:
Outboard . . . . . 1 x 10^{-9} scc/sec He
Inboard . . . . . 2 x 10^{-10} scc/sec He
Across seat . . . . . 4 x 10^{-9} scc/sec He

standard connections

Any combination of 1/4" FS male and/or female fittings:

Gland to gland length . . . . . 2.96 in. (75.1 mm)
Optional . . . . . 2.78 in. (70.6 mm)

Tube stubs inlet and outlet:
End to end length . . . . . 2.25 in. (57.1 mm)

Other configurations available as options–including as many as four ports.
see Valve Selection Guide

internal volume

3.29 cc (including face seal fittings)

surface finishes

Standard Ra . . . . . 5 micro inch (.13 micro meter) or less

approximate weight

.81 lbs (.36 kg)

Parker

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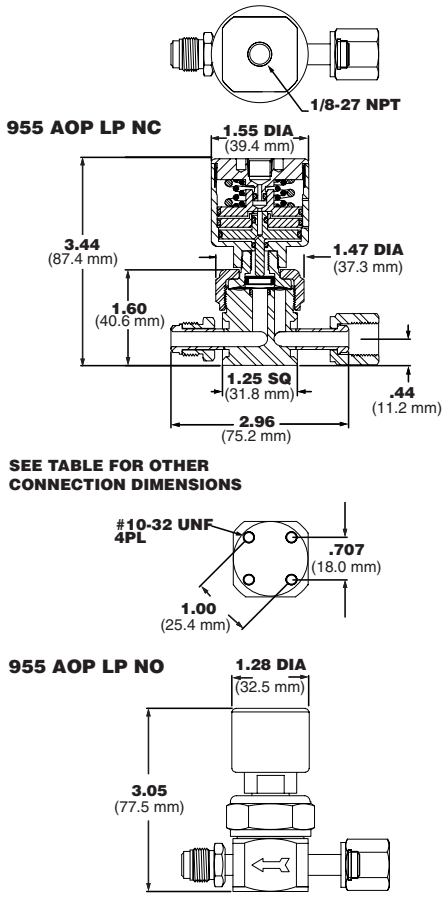
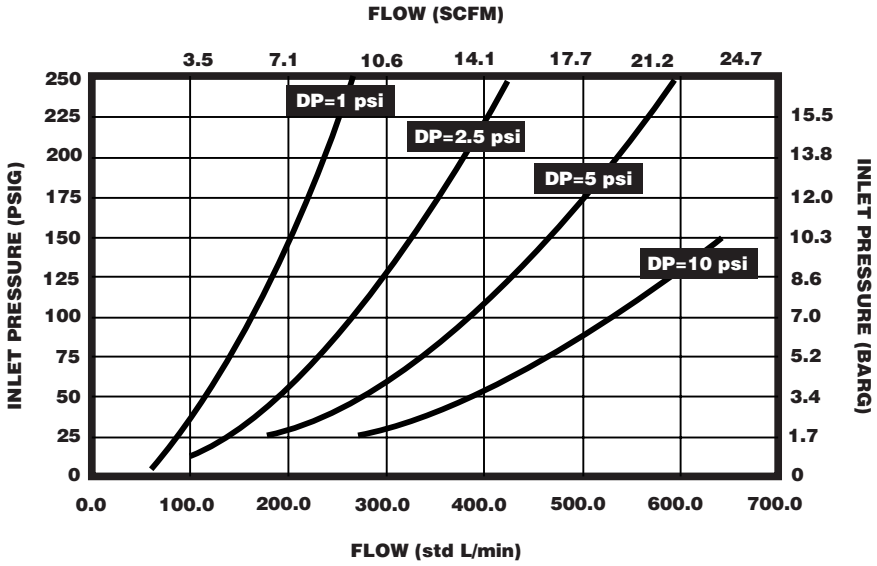
QUANTUM 955AOPLP

Dimensional Drawing



Flow Curve



Connection	End to End Length
1/4" FS	2.96" (75.1 mm) STD
1/4" FS	2.78" (70.6 mm) Optional
1/4" TS	2.25" (57.1 mm) STD
3/8" TS6	2.25" (57.1 mm) STD
1/2" TS8	2.25" (57.1mm) STD
1/2" FS8	4.20 (106.7 mm) STD

Ordering Information

955AOPLP NC S FSMM VESP

BASIC SERIES
955AOPLP = 955 Air Operated, Low Pressure

TYPE
NC = Normally Closed
NO = Normally Open

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

OPTIONAL FEATURES
BL008 = Bleed Valve .008 Orifice
BL015 = Bleed Valve .015 Orifice
LS = Limit Switch
PEEK = PEEK™ Seat
VESP = Vespel® Seat*
2.78 = 2.78" End-To-End (1/4" FS Only)

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
TS = 1/4" Tube Stub
TS6 = 3/8" Tube Stub

*** Recommended for Nitrous Oxide (N_20) Service**
Note: Refer to Valve Selection Guide for multiple porting selections.

Hastelloy C-22® is a registered trademark of Haynes International, Inc.
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.

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QUANUM 955Y

High Purity, High Flow Manifold Valve

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the 955Y. The 955Y is a custom built high-purity, high-flow diaphragm valve manifold, engineered to meet the specific requirements of semiconductor OEM tool manufacturer and point-of-use gas delivery systems.

The 955 Y is a sophisticated design with Veriflo's proven ultra high purity, low internal volume components. Space savings and fewer welds make the 955Y ideal for process control and purge systems.

features

- High cycle life.
- Ideal for valve manifold boxes (VMB).
- Ultra high performance.
- Change over from normally closed (NC) to normally open (NO) without intruding into wetted area.
- Fully functional under vacuum conditions.
- Large Cv ideal for low vapor pressure gases such as WF_6 and chlorinated

materials of construction

Wetted

Body . . . . . "VeriClean", Veriflo's custom high purity Type 316L VAR Stainless Steel™
Seal . . . . . PCTFE, optional Vespel®, PEEK™
Diaphragm . . . . . Elgiloy® or equivalent

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:
AOPLPNCNO . . . . . 125 psig (8.6 barg)
Manual . . . . . 125 psig (8.6 barg)
Minimum operating pressure . . . . . Vacuum
For oxygen . . . . . Refer to CGA G-4.4 Industrial Practices for Gaseous Oxygen
Temperature . . . . -40°F to 150°F (-40°C to 66°C)
Bakeout . . . . . 250°F (121°C) in the open position

surface finishes

Standard Ra . . . . . 10 micro inch (.25 micro meter) or less
Optional Ra . . . . . EV=5 micro inch (.13 micro meter) or less

functional performance

Flow capacity . . . . . C_V 0.43 Process valve (SEMI Flow Coefficient Test #F-32-0998)
Purge Valve . . . . . C_V 0.35

Design Leak Rate:
Across Seat . . . . . 4×10^{-9} scc/sec He
Inboard . . . . . 2×10^{-10} scc/sec He
Outboard . . . . . 1×10^{-9} scc/sec He

standard connections

Any combination of FS male and / or female fittings:
1/4" Gland to gland length . . . . . 4.69 or 4.06 (see dimensional drawing)

1/4" tube stubs inlet and outlet available:
End to end length: 3.62

internal volume

4.49 cc

approximate weight

2.11 lbs (0.98 kgm)

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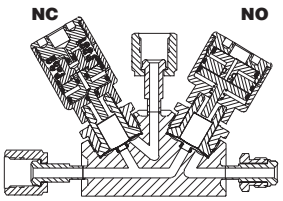
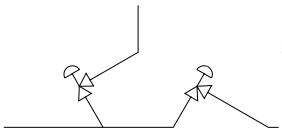
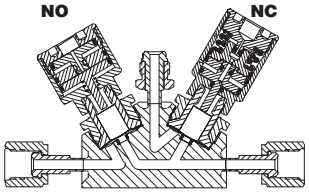
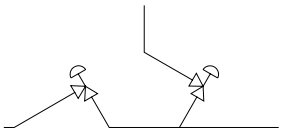
Cross Sectional Drawings



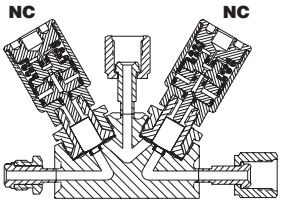


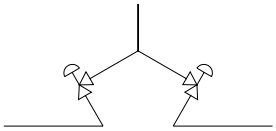
955Y1NO/NCFSMFFA





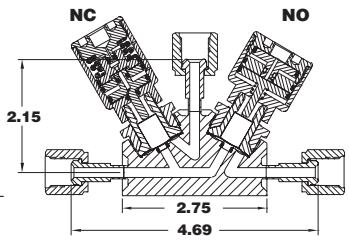
955Y2NC/NOFSFMFA





955Y3NC/NCFSFFMA

Dimensional Drawings



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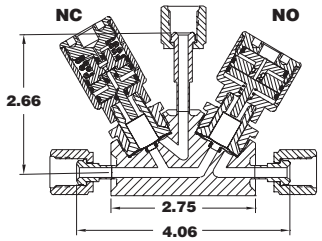
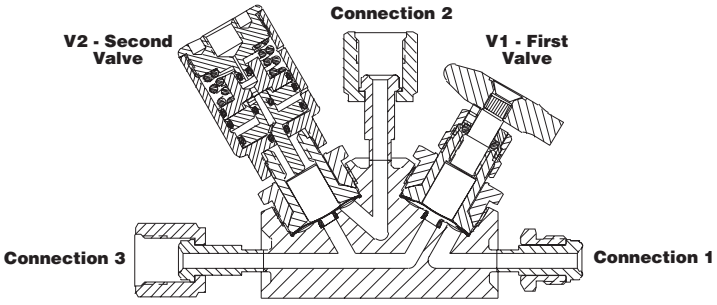


955Y1NO/NCFSFFFB

Ordering Example



955Y1M/NCFSMFFA

Ordering Information

955Y 1 NO/NC FS MFF TH A

BASIC SERIES
955Y

FLOW PATH
1 = Down Stream Purge
2 = Up Stream Purge
3 = Common

TYPE (V1/V2)
NC = AOP LP Normally Closed
NO = AOP LP Normally Open
M = Mini Lever
I = Indicating Handwheel

*** Recommended for Nitrous Oxide (N_2O) Service**

DIMENSIONS
A = 4.69 x 2.15 (FS M or FS F)
B = 4.06 x 2.66 (FS F only)

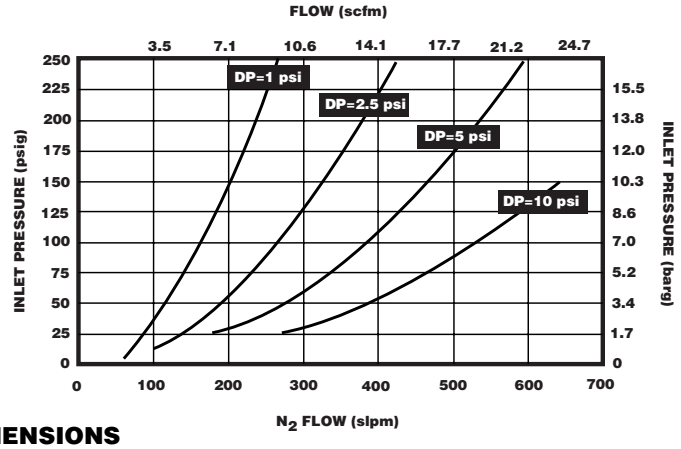
OPTIONAL FEATURES
VESP = Vespel®*
PEEK™ = PEEK™ Seat

PORT CONFIGURATION
M = Face Seal Male
F = Face Seal Female

PORT STYLE
FS = 1/4" Face Seal

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.

Flow Curve



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TITAN II® AOP PLUS Diaphragm Valve

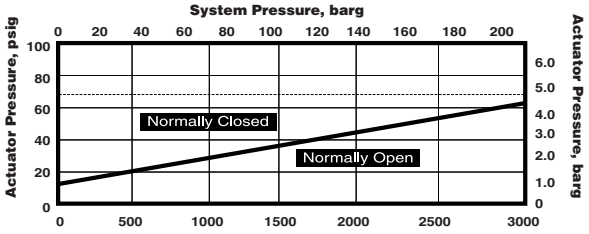
VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the TITAN II® AOP Plus high pressure diaphragm valve. The TITAN II® AOP is specifically designed for high pressure, high cycle, ultra high purity applications.

features

- "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel ™
- Springless, stemless design.
- Metal diaphragm sealed.
- Back panel mounting capabilities.
- High cycle life.
- Fully swept flow path.
- Standard 6 inch micro Ra (0.15 micro meter), EP Surface Finish.
- 100% Helium leak tested.
- Reduced seat volume.
- Normally open and normally closed designs from vacuum to 3000 psig (207 barg)

Actuator Pressure vs. System Pressure (Minimum Values)



materials of construction

Wetted

Body . . . . . "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel™ optional Hastelloy C-22® or Nickel 200
Seat . . . . . PCTFE, optional Vespel®
Diaphragm. . . . . Elgiloy®

Non-wetted

Actuator Housing . . . . . Aluminum

operating conditions

Maximum operating pressure. . . . . 3000 psig (207 barg)
Minimum operating pressure. . . . . Vacuum

AOP Actuation:
Normally Closed . . . . . 70 to 125 psig . . . . . (4.8 to 8.6 bar)
Normally Open . . . . . 70 to 125 psig (4.8 to 8.6 bar)
See Chart Below

Temperature:
PCTFE Seat. . . . . -65°F to 150°F (-54°C to 65°C)
Vespel®Seat. . . . . -65°F to 250°F (-54°C to 121°C)

functional performance

Flow Capacity. . . . . C_V 0.25

Design Leak Rate:
Outboard. . . . . $1x10^{-9}$ scc/sec He
Inboard . . . . . $1x10^{-9}$ scc/sec He
Across seat . . . . . $1x10^{-9}$ scc/sec He

internal volume

1.55 cc

surface finishes

Standard Ra . . . . . 6 micro inch Ra (0.15 micro meter) EP surface finish

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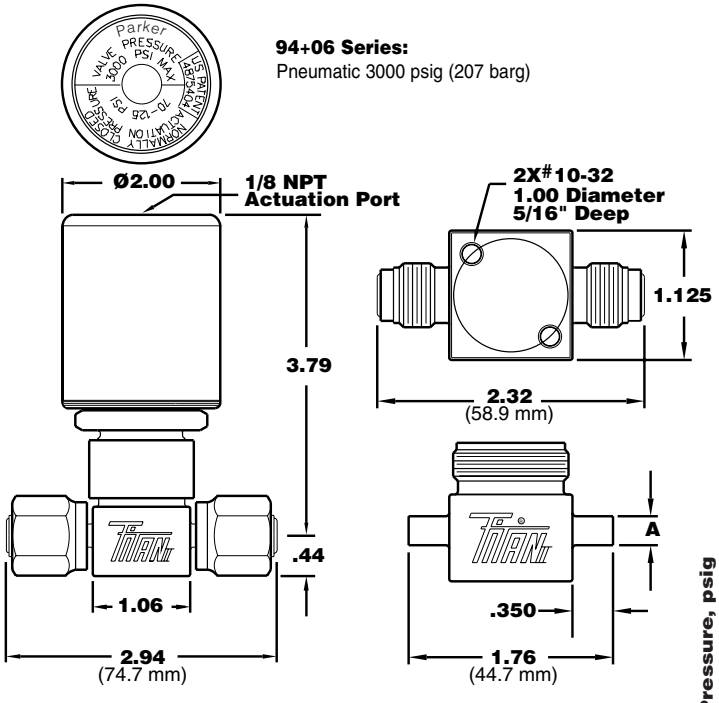
Dimensional Drawings

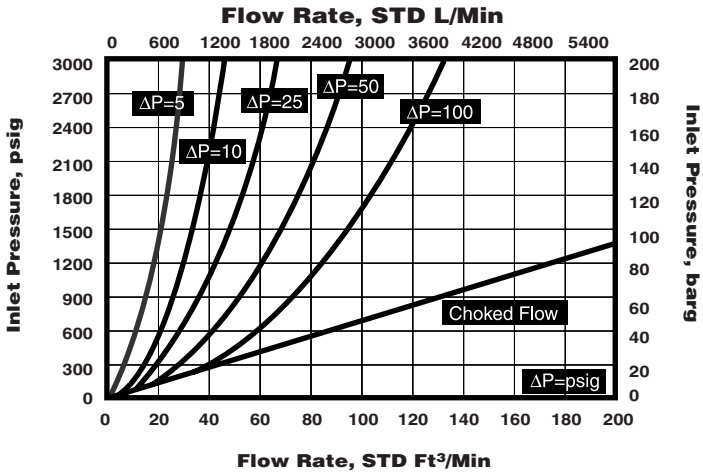


94+06 Series:
Pneumatic 3000 psig (207 barg)

End Connections	Designator	End to End "L" in (mm)	"A" O.D. in (mm)
1/4" Tube Weld	TWTW	1.76 (44.7)	1/4 (6.4)
3/8" Tube Weld	TWTW	1.76 (44.7)	3/8 (9.5)
1/4" VacuSeal™ Male	VMVM	2.31(58.6)	-
1/4" VacuSeal™ Female	VFVF	2.94 (74.7)	-
1/4" VacuSeal™ Male	VMSVMS	3.94 (100.1)	-

Dimensions are for reference only.

Flow Curves



Ordering Information

94 + 06 4 4 2 TW TW - NO

SERIES
94+06 Series = Pneumatic Actuated 3000 psig (207 barg)

INLET PORT SIZE
4 = 1/4"
6 = 3/8"

OUTLET PORT SIZE
4 = 1/4"
6 = 3/8"

MATERIAL
2 = 316L Stainless Steel
16 = Hastelloy C-22®
31 = Nickel

INLET CONNECTION
TW = Tube Weld
VF = VacuSeal™ Female
VM = VacuSeal™ Male (1/4")
VMS = VacuSeal™ Male Swivel

OPTIONAL FEATURES
CB1 = Constant Bleed 1 slpm
CB3 = Constant Bleed 3 slpm
PI = Vespel® Seat†
PCTFE Seat (Standard) Leave Blank
NO = Normally Open Actuator
Normally Closed Actuator (Standard) Leave Blank

OUTLET CONNECTION
TW = Tube Weld
VF = VacuSeal™ Female
VM = VacuSeal™ Male (1/4")
VMS = VacuSeal™ Male Swivel

† **Recommended for Nitrous Oxide (N_2O) Service**

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Elgiloy® is a registered trademark of Elgiloy Corporation.
Hastelloy® is a registered trademark of Haynes International.
Vespel® is a registered trademark of DuPont Company.

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TITAN II® AOP PLUS

Pressure Diaphragm Valve

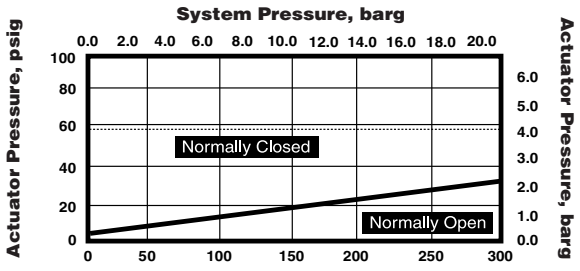
VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the TITAN II® AOP Plus medium pressure diaphragm valve. The TITAN II AOP® is specifically designed for medium pressure, medium cycle, ultra high purity applications.

features

- "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel ™
- Springless, stemless design.
- Metal diaphragm sealed.
- Back panel mounting capabilities.
- High cycle life.
- Fully swept flow path.
- Standard 6 inch micro Ra (0.15 micro meter), EP Surface Finish.
- 100% Helium leak tested.
- Reduced seat volume.
- Normally open and normally closed designs from vacuum to 300 psig (20.7 barg)

Actuator Pressure vs. System Pressure (Minimum Values)



materials of construction

Wetted

Body . . . . . "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel ™ optional Hastelloy C-22® or Nickel 200
Seat . . . . . PCTFE, optional Vespel®
Diaphragm. . . . . Elgiloy®

Non-wetted

Actuator Housing . . . . . Aluminum

operating conditions

Maximum operating pressure. . . . . 300 psig (20.7 barg)

Minimum operating pressure. . . . . Vacuum

AOP Actuation:
Normally Open . . . . . 70 to 125 psig (4.8 to 8.6 bar)
Normally Closed. . . . . 70 to 125 psig (4.8 to 8.6 bar)
See chart below

Temperature:
PCTFE Seat. . . . . -65°F to 150°F (-54°C to 65°C)
Vespel®Seat. . . . . -65°F to 250°F (-54°C to 121°C)

functional performance

Flow Capacity. . . . . C_V 0.25

Design Leak Rate:
Outboard. . . . . $1x10^{-9}$ scc/sec He
Inboard. . . . . $1x10^{-9}$ scc/sec He
Across seat. . . . . $1x10^{-9}$ scc/sec He

internal volume

1.55 cc

surface finishes

Standard Ra . . . . . 6 micro inch Ra (0.15 micro meter) EP surface finish

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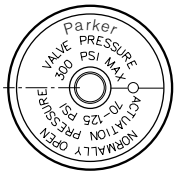
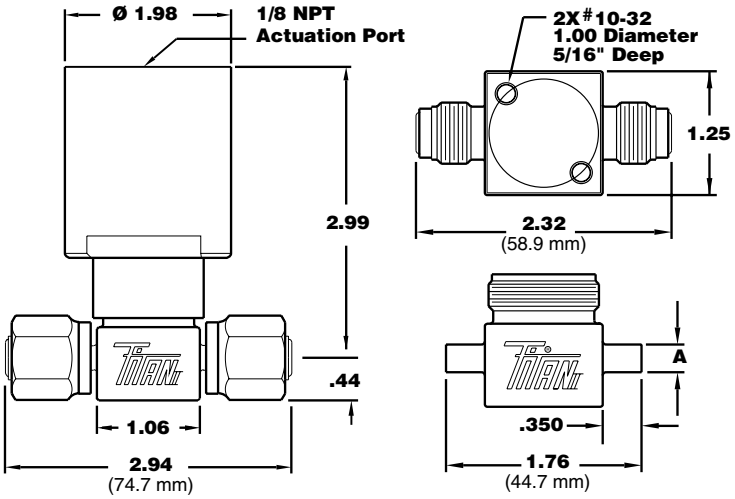
Dimensional Drawings



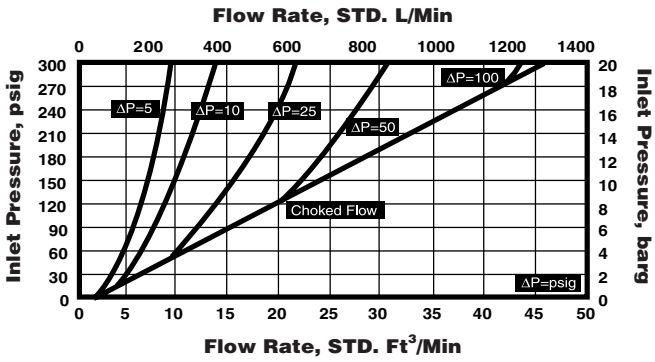
92+06 Series:
Pneumatic 300 psig (20.7 barg)



End Connections	Designator	End to End "L" in (mm)	"A" O.D. in (mm)
1/4" Tube Weld	TWTW	1.76 (44.7)	1/4 (6.4)
3/8" Tube Weld	TWTW	1.76 (44.7)	3/8 (9.5)
1/4" VacuSeal™ Male	VMVM	2.31 (58.6)	-
1/4" VacuSeal™ Female	VFVF	2.94 (74.7)	-
1/4" VacuSeal™ Male	VMSVMS	3.94 (100.1)	-

Dimensions are for reference only.

Flow Curves



Ordering Information

92 + 06 4 4 2 TW TW - NO

SERIES
92+06 Series = Pneumatic Actuated 300 psig (20.7 bar)

INLET PORT SIZE
4 = 1/4"
6 = 3/8"

OUTLET PORT SIZE
4 = 1/4"
6 = 3/8"

MATERIAL
2 = 316L Stainless Steel
16 = Hastelloy C-22®
31 = Nickel

INLET CONNECTION
TW = Tube Weld
VF = VacuSeal™ Female
VM = VacuSeal™ Male (1/4")
VMS = VacuSeal™ Male Swivel

OPTIONAL FEATURES
CB1 = Constant Bleed 1 slpm
CB3 = Constant Bleed 3 slpm
PI = Vespel® Seat†
PCTFE Seat (Standard) Leave Blank
NO = Normally Open Actuator
Normally Closed Actuator (Standard) Leave Blank

OUTLET CONNECTION
TW = Tube Weld
VF = VacuSeal Female
VM = VacuSeal Male (1/4")
VMS = VacuSeal Male Swivel

† **Recommended for Nitrous Oxide (N_2O) Service**

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Hastelloy® is a registered trademark of Haynes International.
Vespel® is a registered trademark of DuPont Company.

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TITAN II® AOP PLUS

Diaphragm Valve

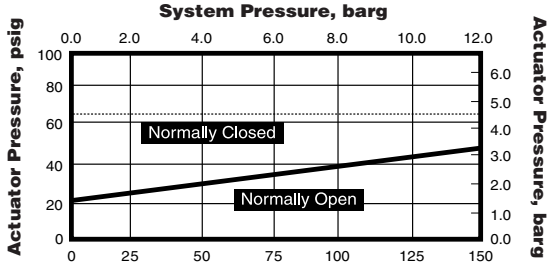
VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the TITAN II® AOP Plus low pressure diaphragm valve. TITAN II® AOP is specifically designed for low pressure, low cycle, ultra high purity applications.

features

- "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel ™
- Springless, stemless design.
- Metal diaphragm sealed.
- Back panel mounting capabilities.
- High cycle life.
- Fully swept flow path.
- Standard 6 inch micro Ra (0.15 micro meter), EP Surface Finish.
- 100% Helium leak tested.
- Reduced seat volume.
- Normally open and normally closed designs from vacuum to 150 psig (10.5 barg).

Actuator Pressure vs. System Pressure (Minimum Values)



materials of construction

Wetted

Body . . . . . "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel ™ optional Hastelloy C-22® or Nickel 200
Seat . . . . . PCTFE, optional Vespel®
Diaphragm. . . . . Elgiloy®

Non-wetted

Actuator Housing . . . . . Aluminum

operating conditions

Maximum operating pressure. . . . . 150 psig (10.5 barg)

Minimum operating pressure rating . . . Vacuum

AOP Actuation:
Normally Open . . . . . 70 to 125 psig (4.8 to 8.6 bar)
Normally Closed. . . . . 70 to 125 psig (4.8 to 8.6 bar)
See chart below

Temperature:
PCTFE Seat. . . . . -65°F to 150°F (-54°C to 65°C)
Vespel®Seat. . . . . -65°F to 250°F (-54°C to 121°C)

functional performance

Flow Capacity. . . . . C_V 0.25

Design Leak Rate:
Outboard . . . . . $1x10^{-9}$ scc/sec He
Inboard. . . . . $1x10^{-9}$ scc/sec He
Across seat. . . . . $1x10^{-9}$ scc/sec He

internal volume

1.55 cc

surface finishes

Standard Ra . . . . . 6 micro inch Ra (0.15 micro meter) EP surface finish

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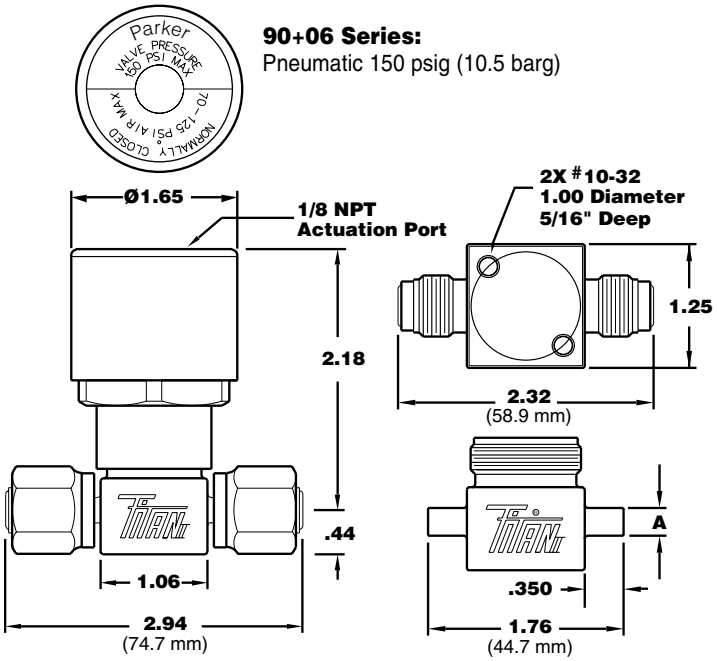
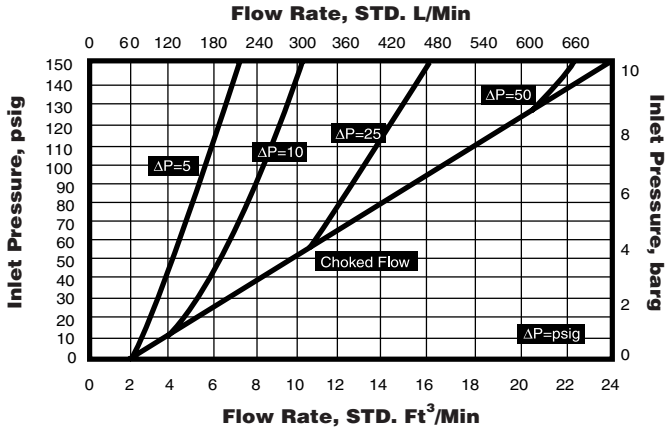
Dimensional Drawings



End Connections	Designator	End to End "L" in (mm)	"A" O.D. in (mm)
1/4" Tube Weld	TWTW	1.76 (44.7)	1/4 (6.4)
3/8" Tube Weld	TWTW	1.76 (44.7)	3/8 (9.5)
1/4" VacuSeal™ Male	VMVM	2.31 (58.6)	-
1/4" VacuSeal™ Female	VFVF	2.94 (74.7)	-
1/4" VacuSea™l Male	VMSVMS	3.94 (100.1)	-

Dimensions are for reference only.

Flow Curves



Ordering Information

90 + 06 4 4 2 TW TW - NO

SERIES
90+06 Series = Pneumatic Actuated 150 psig (10.5 bar)

INLET PORT SIZE
4 = 1/4"
6 = 3/8"

OUTLET PORT SIZE
4 = 1/4"
6 = 3/8"

MATERIAL
2 = 316L Stainless Steel
16 = Hastelloy C-22®
31 = Nickel

INLET CONNECTION
TW = Tube Weld
VF = VacuSeal™ Female
VM = VacuSeal™l Male (1/4")
VMS = VacuSeal™l Male Swivel

OPTIONAL FEATURES
CB1 = Constant Bleed 1 slpm
CB3 = Constant Bleed 3 slpm
PI = Vespel® Seat†
PCTFE Seat (Standard)Leave Blank
NO = Normally Open Actuator
Normally Closed Actuator (Standard) Leave Blank

OUTLET CONNECTIONS
TW = Tube Weld
VF = VacuSeal™ Female
VM = VacuSeal™ Male (1/4")
VMS = VacuSeal™ Male Swivel

† **Recommended for Nitrous Oxide (N_2O) Service**

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TITAN II® MANUAL PLUS

Pressure Diaphragm Valve

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the TITAN II® Manual Plus, springless diaphragm valve, which is specifically designed for high pressure, high cycle, and ultra high purity applications.

features

- "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel™.
- Springless, stemless design.
- Metal diaphragm sealed.
- Back panel mounting capabilities.
- High cycle life.
- Fully swept flow path.
- Standard 6 inch micro Ra (0.15 mm), EP Surface Finish.
- 100% Helium leak tested.
- Reduced seat volume.
- Position changeable 1/4 turn lever handle.

materials of construction

Wetted

Body . . . . . "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel™ optional Hastelloy C-22®or Nickel 200

Seat . . . . . PCTFE, Optional Vespel®

Non-wetted

Bonnet . . . . . 303 Stainless Steel

Handle . . . . . Aluminum

operating conditions

Maximum operating pressure . . . . . 3000 psig (207 barg)

Minimum operating pressure . . . . . Vacuum

Temperature:

PCTFE Seat . . . . . -65°F to 150°F (-54°C to 65°C)

Vespel®Seat . . . . . -65°F to 250°F (-54°C to 121°C)

functional performance

Flow capacity . . . . . C_V 0.25

Design Leak Rate:

Outboard . . . . . $1x10^{-9}$ scc/sec He

Inboard . . . . . $1x10^{-9}$ scc/sec He

Across seat . . . . . $1x10^{-9}$ scc/sec He

internal volume

1.55 cc

surface finishes

Standard Ra . . . . . 6 micro inch Ra (0.15 micro meter) EP surface finish

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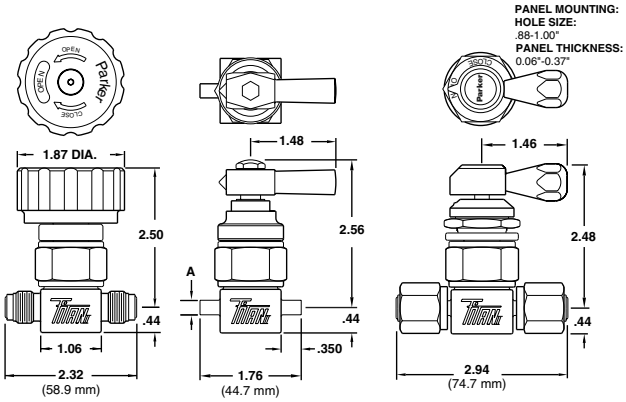
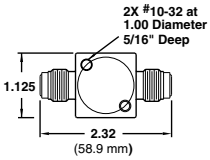
Dimensional Drawings

06 - Series
1/2 & 1/4 Turn
Round Handle

07 - Series:
1/4 Turn Lever Handle

07L - Series:
1/4 Turn Lever Indicator
Positional Handle

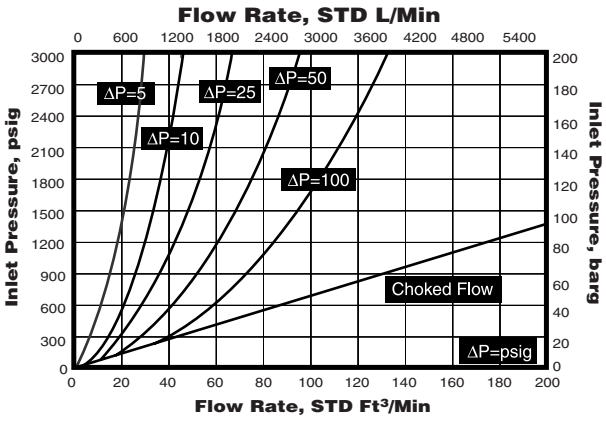


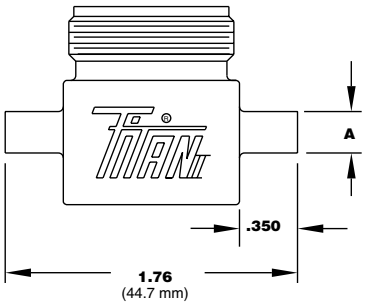


End Connections	Designator	End to End "L" in (mm)	"A" O.D. in (mm)
1/4" Tube Weld	TWTW	1.76 (44.7)	1/4 (6.4)
3/8" Tube Weld	TWTW	1.76 (44.7)	3/8 (9.5)
1/4" VacuSeal Male	VMVM	2.32 (58.9)	-
1/4" VacuSeal Female	VFVF	2.96 (75.2)	-
1/4" VacuSeal Male Swivel Nut	VMSVMS	3.94 (100.1)	-

Dimensions are for reference only.

Flow Curves





Ordering Information

07+ 4 4 2 TW TW- PI

SERIES
06 + Series = Round Handle 1/2 turn (Standard)
06I + Series = Round Handle 1/4 turn (Optional)
07 + Series = Lever Handle 1/4 turn (Standard)
07L + Series = Indicating Lever Handle 1/4 turn (Optional)

INLET PORT SIZE
4 = 1/4"
6 = 3/8"

OUTLET PORT SIZE
4 = 1/4"
6 = 3/8"

MATERIAL
2 = 316L Stainless Steel™
16 = Hastelloy C-22®
31 = Nickel

INLET CONNECTION
TW = Tube Weld
VF = VacuSeal™ Female
VM = VacuSeal™ Male (1/4")

OPTIONAL FEATURES
CB1 = Constant Bleed 1 slpm
CB3 = Constant Bleed 3 slpm
PI = Vespel® Seat†
PCTFE Seat - Standard - Leave Blank
RD = Red Handle
WH = White Handle
Blue Handle - Standard - Leave Blank

Note: *Consult factory for additional handle options.*

OUTLET CONNECTION
TW = Tube Weld
VF = VacuSeal™ Female
VM = VacuSeal™ Male (1/4")
VMS = VacuSeal™ Male Swivel

†**Recommended for Nitrous Oxide (N_2O) Service**

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Vespel® is a registered trademark of DuPont Company.

Notes: Consult factory for additional Connection options

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VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the TITAN II® MS manual, springless diaphragm valve, which is specifically designed for high temperature, high pressure, high cycle, and ultra high purity applications.

features

- Springless stemless design.
- 6 Ra electropolished (EP) internal surface finish.
- Maximum allowable leakage: $1x10^{-9}$ scc/sec Helium.
- "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel™.
- Manual and pneumatically actuated designs. Actuator pressure to open 70 psig min to 125 psig max.

materials of construction

Wetted

Body . . . . . "VeriClean", Veriflo's custom high purity Type 316L Stainless Steel™ optional Hastelloy C-22®or Nickel 200
Seat. . . . . Integral Metal
Diaphragm. . . . . Elgiloy®

Non-wetted

Bonnet . . . . . 303 Stainless Steel
Handle. . . . . Aluminum

operating conditions

Maximum operating pressure. . . . . 3000 psig (207 barg)
Minimum operating pressure. . . . . Vacuum

Maximum Temperature limit: . . . . . 150°F(65.5°C)

AOPActuation . . . . . -70 psig to 125 psig (4.8 barg to 8.6 barg)

functional performance

Flow capacity . . . . . C_V 0.27

Design Leak Rate:
Outboard . . . . . $1x10^{-9}$ scc/sec He
Inboard. . . . . $1x10^{-9}$ scc/sec He
Across seat. . . . . $1x10^{-9}$ scc/sec He

internal volume

1.55 cc

surface finishes

Standard Ra . . . . . 6 micro inch Ra (0.15 micro meter) EP surface finish

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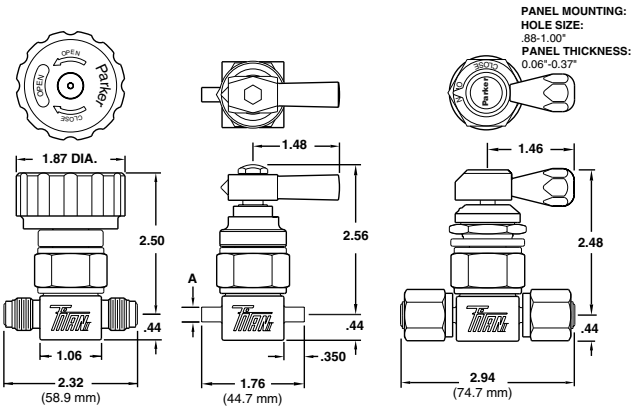
Dimensional Drawings

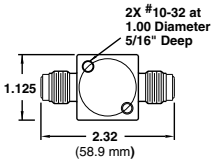
06 - Series
1/2 & 1/4 Turn
Round Handle

07 - Series:
1/4 Turn Lever Handle

07L - Series:
1/4 Turn Lever Indicator
Positional Handle

PANEL MOUNTING:
HOLE SIZE:
.88-1.00"
PANEL THICKNESS:
0.06"-0.37"

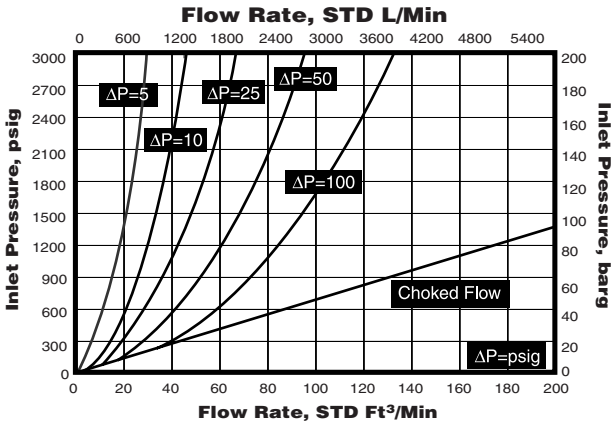


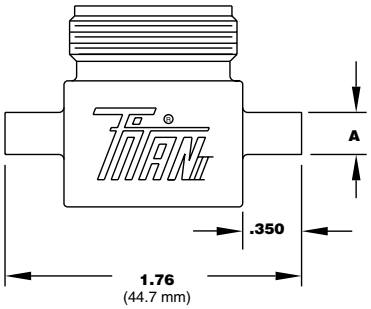


End Connections	Designator	End to End "L" in (mm)	"A" O.D. in (mm)
1/4" Tube Weld	TWTW	1.76 (44.7)	1/4 (6.4)
3/8" Tube Weld	TWTW	1.76 (44.7)	3/8 (9.5)
1/4" VacuSeal Male	VMVM	2.32 (58.9)	-
1/4" VacuSeal Female	VFVF	2.96 (75.2)	-
1/4" VacuSeal Male Swivel Nut	VMSVMS	3.94 (100.1)	-

Dimensions are for reference only.

Flow Curves





Ordering Information

07- 4 4 2 TW TW- MS

SERIES
06 - Series = Round Handle 1/2 turn (Standard)
06I - Series = Round Handle 1/4 turn (Optional)
07 - Series = Lever Handle 1/4 turn (Standard)
07L - Series = Indicating Lever Handle 1/4 turn (Optional)
94 - 06 = Pneumatic Actuator 3000 psig

INLET PORT SIZE
4 = 1/4"
6 = 3/8"

OUTLET PORT SIZE
4 = 1/4"
6 = 3/8"

MATERIAL
2 = 316L Stainless Steel™
16 = Hastelloy C-22®
31 = Nickel

INLET CONNECTION
TW = Tube Weld
VF = VacuSeal™ Female
VM = VacuSeal™ Male (1/4")
VMS = VacuSeal™ Male Swivel

Notes: Consult factory for additional Connection options

OPTIONAL FEATURES
CB1 = Constant Bleed 1 slpm
CB3 = Constant Bleed 3 slpm
MS = Metal Seat
Clear Handle - Standard - Leave Blank

Note: *Consult factory for additional handle options.*

OUTLET CONNECTION
TW = Tube Weld
VF = VacuSeal™ Female
VM = VacuSeal™ Male (1/4")
VMS = VacuSeal™ Male Swivel

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Hastelloy® is a registered trademark of Haynes International.

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QUANTUM 928AOPHP Air Operated Valve

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the Quantum 928AOPHP. The 928AOPHP is a poppet-style diaphragm valve for remote control of gases or liquids.

The 928AOPHP serves two functions: it acts as the system inlet valve, and it reduces the system pressure to a safer working range.

features

- "VeriClean", Veriflo's low sulfur high purity 316L VAR Stainless Steel™ enhances electropolishing, welding and corrosion resistance.
- Improves system safety by lowering or regulating system pressure to 350 psig.
- The 928 AOPHP is field-convertible, in place, to a 928 L (lever operated) valve by a simple exchange of non-wetted parts.
- Fully functional from a vacuum to 3500 psig inlet and outlet.
- Aerodynamic, smooth flow passages.
- Minimum particle generation and entrapment.
- 100% Helium leak tested.
- A unique patented compression member which loads the seal uniformly without the need for threaded components or crimping operations.
- "Hurricane" cleaning, optional proprietary cleaning process, removes metallic ions, organic films

materials of construction

Wetted

Body . . "VeriClean" ,Veriflo's custom high purity Type 316L VAR Stainless Steel™, Hastelloy C-22®
Seal . . . . . PCTFE, optional Vespel®
Diaphragm . . . . . Elgiloy® or equivalent
Poppet. . . . . 316L Stainless Steel, Hastelloy C-22®
Compression Member . . . . . 316L Stainless Steel, Hastelloy C-22®
Spring . . . . . Hastelloy C-22®
Screen. . . . . Hastelloy C-22®

Non-Wetted

Nut. . . . . 316L Stainless Steel
Cap. . . . . 316L Stainless Steel

Actuator Materials

Actuator Housing . . . . . Brass, Nickel Plated

operating conditions

Maximum inlet pressure . . . 3500 psig (240 barg)
For Oxygen . . . . . 2200 psig (151 barg)
Minimum operating pressure . . . . . Vacuum
Nominal outlet pressure . . . . . 350 psig (24 barg) with 2000 psig (138 barg) inlet pressure and 80 psig (5.5 barg) actuator pressure

Outlet pressure varies with inlet and actuator pressure

Temperature . . . . . -40°F to 150°F (-40°C to 66°C)
Bake out . . . . 250°F (121°C) in the open position
Flow capacity . . . . . C_V=.04

functional performance

Design Leak Rate:
Outboard . . . . . Less than 1 x 10^{-9} scc/sec He
Inboard . . . . . Less than 2 x 10^{-10} scc/sec He
Across seat . . . . . Less than 4 x 10^{-9} scc/sec He
Design Proof Pressure . . . . . 5,250 psig (362 barg)
Design Burst Pressure . . . . 10,500 psig (724 barg)

standard configurations

Any combination of 1/4" FS male and/or female fittings
Gland to gland length . . . . . 2.78 in. (70.6 mm)
Optional . . . . . 3.06 in. (77.7 mm)
1/4 inch tube stubs inlet and outlet
End to end length . . . . . 1.75 in. (44.5 mm)
Other configurations available as options - including as many as five ports

internal volume

1.86 cc (including face seal fittings)

surface finishes

Standard Ra. . . . . 15-20 micro inch (.38 to .5 micro meter) or less
Optional Ra. . . . . EX=10 micro inch (.25 micro meter) or less

approximate weight

1.1 lbs (.49 kg)

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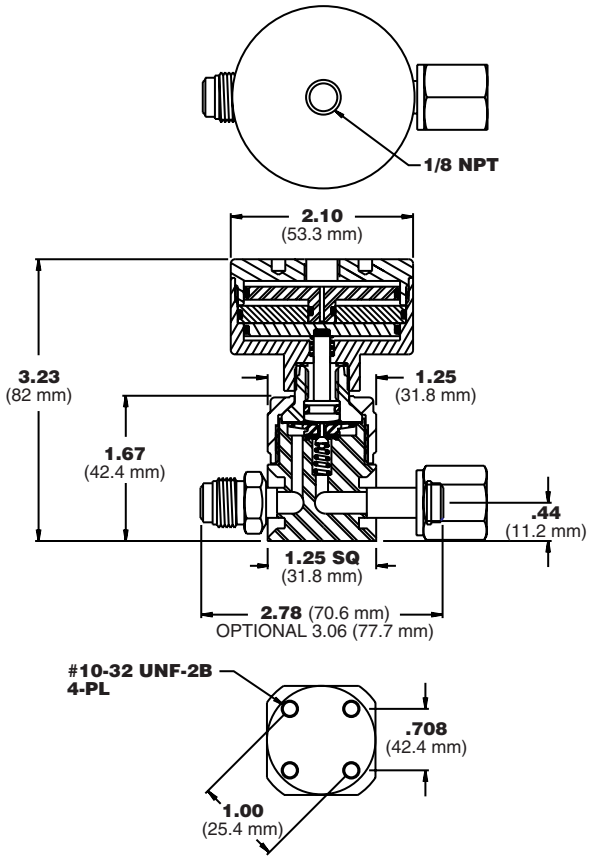
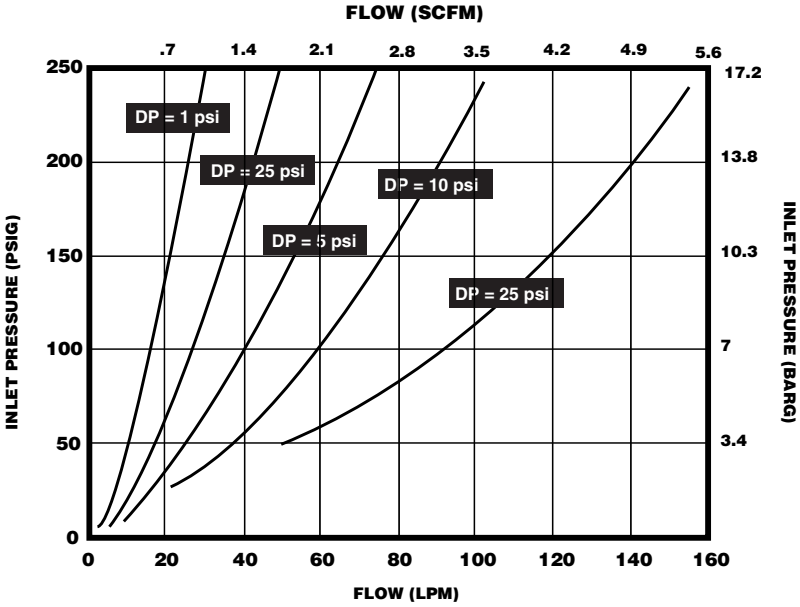
Dimensional Drawing



Flow Curve



Ordering Information

928 AOPHP S FSMM VESP

BASIC SERIES
928

TYPE
AOPHP = Air Operated High Pressure

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

OPTIONAL FEATURES
TH = Hastelloy C-22® Trim **
VESP = Vespel® Seat***

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
TS	=	1/4" Tube Stub
P	=	1/4" NPTF

*** Hastelloy C-22® Material Option includes: body, compression member, poppet, spring, and screen.**
**** TH option includes: Hastelloy C-22® compression member, poppet, spring, and screen.**
***** Recommended for Nitrous Oxide (N_20) Service.**
† See Valve Selection Guide for multiple porting selections.

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Kel-F 81® is a registered trademark of 3M Company.
Vespel® is a registered trademark of DuPont Company.
Elgiloy® is a registered trademark of Elgiloy Company.
Viton® is a registered trademark of DuPont Dow Elastomers Company

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LockOut-TagOut Option

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the LockOut-TagOut safety option available for its standard diaphragm valve product line.

This design allows for tools or gas lines to be locked out for maintenance activities. This durable metal design can be used with confidence while doing repairs.

materials of construction

Clamp. . . . . ZA-27 alloy casting
Powder coat (Red)
Nut . . . . . 303 Stainless Steel
Washer . . . . . 304 Stainless Steel Annealed
Dowel Pin . . . . . Stainless Steel 18-8

Note: Refer to individual valve literature sheet for specific product specifications.

- Designed to hold pressures up to 3500 psig (see table below for specific pressures).
- Durable metal design for added safety
- Easy field upgrades to Mini-Lever actuated valves (special tool required PN: 15000333).
- Adaptable to the 944, 945, 930, 955, NV55, and NOVA valves.
- Use with padlock sizes #7(.187" diameter) through #3(.281" diameter).
- Adaptable for panel mount use (.065"-.125")

Product	Maximum Operating Pressure	Maximum Safety Inlet Pressure in Closed & Locked Position
944M ..... LK	3500 PSIG (240 barg)	3500 PSIG (240 barg)
945M ..... LK	3500 PSIG (240 barg)	3500 PSIG (240 barg)
930M ..... LK	250 PSIG (17.2 barg)	250 PSIG (17.2 barg)
955M ..... LK	250 PSIG (17.2 barg)	250 PSIG (17.2 barg)
NV55M ..... LK	250 PSIG (17.2 barg)	250 PSIG (17.2 barg)
NOVAM ..... LK	3500 PSIG (240 barg)	3500 PSIG (240 barg)

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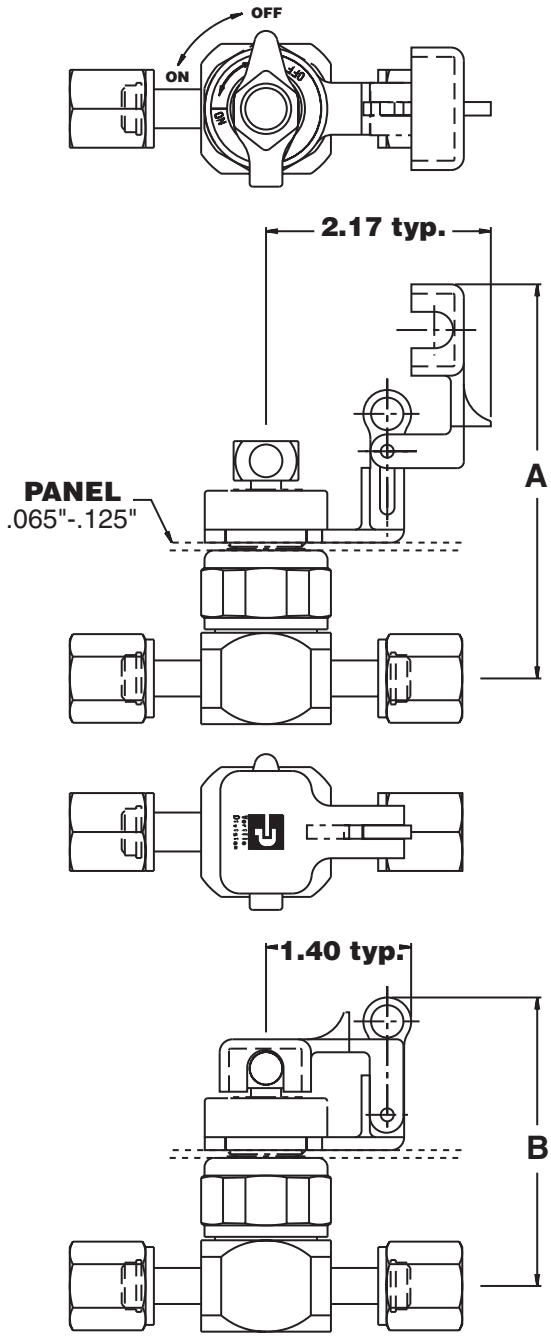
Dimensional Drawing

Valve Type	Dimension A	Dimension B
930M	3.57 (90.7)	2.55 (64.7)
944M	3.80 (96.5)	2.78 (70.6)
945M	3.57 (90.7)	2.55 (64.8)
955M	3.72 (94.5)	2.70 (68.6)
NV55M	3.57 (90.7)	2.55 (64.8)
NOVAM	3.45 (87.6)	2.43 (61.7)



Ordering Information

Refer to each individual basic series valve type literature sheet for proper ordering information.

LockOut-TagOut

BASIC SERIES

944M ..... LK
945M ..... LK
930M ..... LK
955M ..... LK
NV55M .....LK
NOVAM ....LK

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VAC100

Vacumm Generator

VERIFLO
ISO 9001 Certified

Parker Hannifin Corporation's Veriflo Division presents the VAC100 vacuum generator which has been designed to be used in conjunction with purge systems.

features

- The vacuum generated is a function of the pressure of the purge gas which flows through the generator.
- Vacuum generator will improve the effectiveness of cycle purging.
- The VAC100 will increase the efficiency of the dilution process in purge systems, when the vacuum port of the VAC100 is connected to the outlet of the vent valve.

materials of construction

Wetted

Body . . . . . 316L Stainless Steel
Venturi. . . . . 316L Stainless Steel
Nozzle . . . . . 316L Stainless Steel

operating conditions

Temperature . . . . . -40°F to 200°F
(-40°C to 95°C)

standard configurations

1/8" NPT (2 male NPT and 1 female NPT)
1/4" FS male and/or female fittings

approximate weight

2.0 oz (.03 kg)

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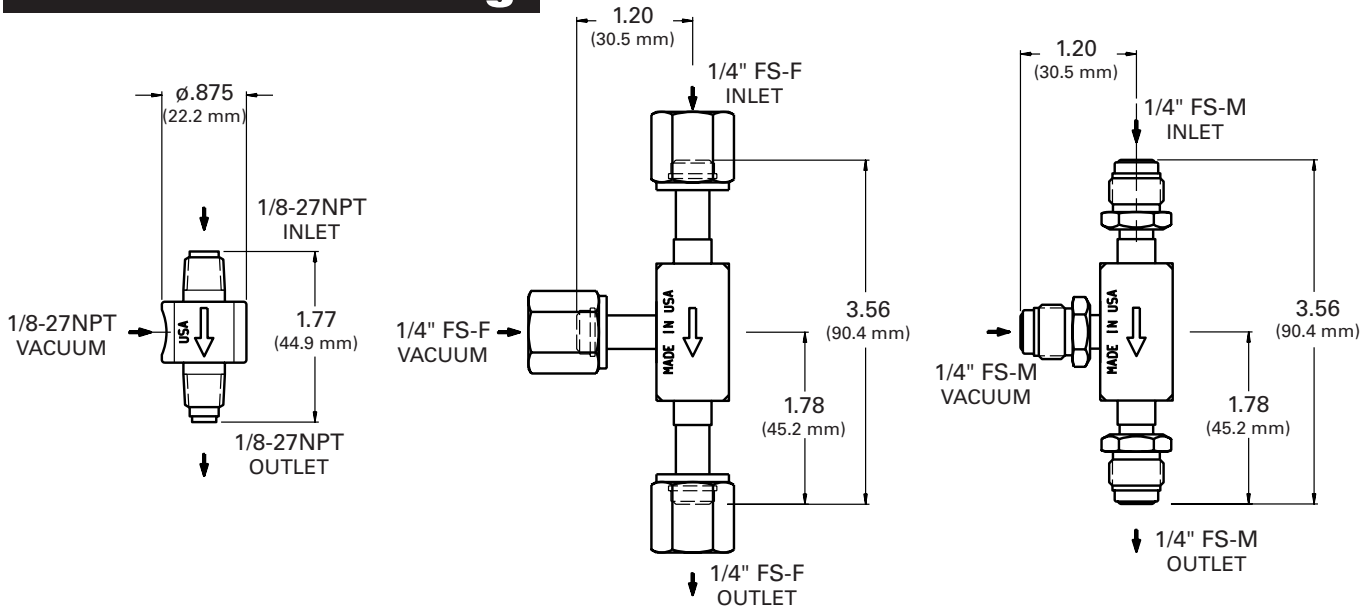
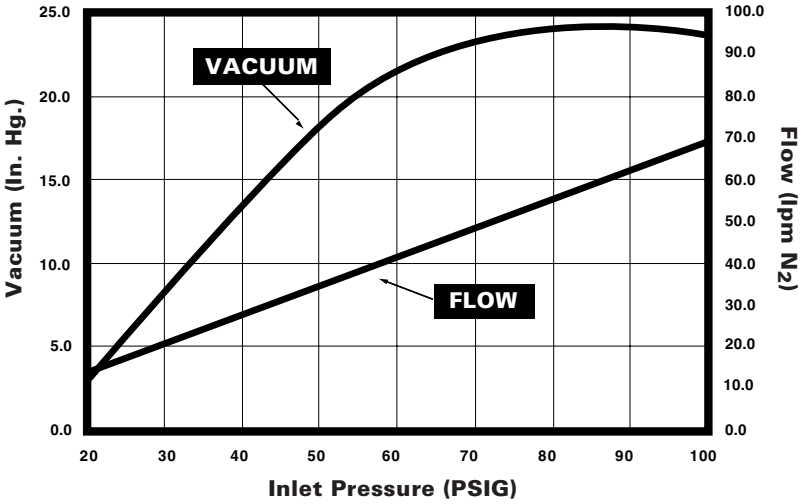
Dimensional Drawing



Flow Curves



TYPICAL VALUES

Pressure	Flow	Vacuum
40 psig (2.7 barg)	30 SLPM	13 in. Hg. (330 mm Hg)
60 psig (4.1 barg)	40 SLPM	21 in. Hg. (533 mm Hg)
80 psig (5.5 barg)	55 SLPM	24 in. Hg. (635 mm Hg)

Ordering Information

VAC100 S FSF

BASIC SERIES
VAC100

MATERIAL
S = 316L Stainless Steel

CONNECTIONS
2 = 1/8" NPTM
FSF = 1/4" Face Seal Female
FSM = 1/4" Face Seal Male

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Parker Hannifin Corporation

About Parker Hannifin Corporation

Parker Hannifin is a leading global motion-control company dedicated to delivering premier customer service. A Fortune 500 corporation listed on the New York Stock Exchange (PH), our components and systems comprise over 1,400 product lines that control motion in some 1,000 industrial and aerospace markets. Parker is the only manufacturer to offer its customers a choice of hydraulic, pneumatic, and electromechanical motion-control solutions. Our Company has the largest distribution network in its field, with over 7,500 distributors serving nearly 400,000 customers worldwide.

Parker's Charter

To be a leading worldwide manufacturer of components and systems for the builders and users of durable goods. More specifically, we will design, market and manufacture products controlling motion, flow and pressure. We will achieve profitable growth through premier customer service.

Product Information

North American customers seeking product information, the location of a nearby distributor, or repair services will receive prompt attention by calling the Parker Product Information Center at our toll-free number: 1-800-C-PARKER (1-800-272-7537). In Europe, call 00800-C-PARKER-H (00800-2727-5374).

The Aerospace Group is a leader in the development, design, manufacture and servicing of control systems and components for aerospace and related high-technology markets, while achieving growth through premier customer service.

The Climate & Industrial Controls Group designs, manufactures and markets system-control and fluid-handling components and systems to refrigeration, air-conditioning and industrial customers worldwide.

The Fluid Connectors Group designs, manufactures and markets rigid and flexible connectors, and associated products used in pneumatic and fluid systems.

The Seal Group designs, manufactures and distributes industrial and commercial sealing devices and related products by providing superior quality and total customer satisfaction.

The Hydraulics Group designs, produces and markets a full spectrum of hydraulic components and systems to builders and users of industrial and mobile machinery and equipment.

The Filtration Group designs, manufactures and markets quality filtration and clarification products, providing customers with the best value, quality, technical support, and global availability.

The Automation Group is a leading supplier of pneumatic and electromechanical components and systems to automation customers worldwide.

The Instrumentation Group is a global leader in the design, manufacture and distribution of high-quality critical flow components for worldwide process instrumentation, ultra-high-purity, medical and analytical applications.

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