

PERFORMANCE FOR THE MODERN WORLD

Product overview

AFP SPECIALIZES IN THE DESIGN AND MANUFACTURE OF COMPLEX CHROMATOGRAPHY MEASUREMENT VALVES FOR THE INSTRUMENTATION, LABORATORY, SCIENTIFIC AND INDUSTRIAL MARKETS. OUR SOLUTIONS INCORPORATE INNOVATIVE PATENTED TECHNOLOGIES THAT ENSURE CONSISTENT AND EXTREMELY PRECISE MEASUREMENT AND THEY ARE THE CHOICE OF THE WORLD LEADING COMPANIES IN THE FIELD. MANUFACTURED WITH THE BEST TECHNOLOGIES AVAILABLE AND CALIBRATED AND CONTROLLED BY AN EXPERT TEAM DEDICATED TO PERFECTION. OUR ANALYTICAL PRODUCTS REPRESENT A RELIABLE AND AFFORDABLE OPTION FOR ANY COMPANY SUBJECT TO THE INCREASINGLY STRINGENT REOUIREMENTS OF THE MODERN WORLD.



HIGH PERFORMANCE GC DIAPHRAGM VALVE

The only one with an embedded patented purge system.

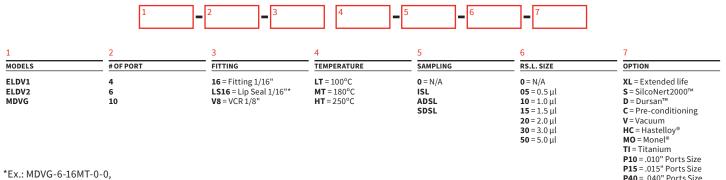
- UNIQUE PATENTED PURGE FEATURE
- VALVES TO FIT YOUR APPLICATION
- THE ONLY DIAPHRAGM VALVE FOR VACUUM APPLICATION
- **REAL-TIME HEALTH MONITORING**
- AVAILABLE WITH NO-PURGE OPTION EXCEPT MDVG SERIES

The GC diaphragm valve family is available with multiple configurations to answer to your specific needs. We offer different valve head materials such as SS-316L, Hastelloy[®], Monel[®], PEEK, PTFE, and more. We also offer coatings like SilcoNert[®] 2000 and Dursan[®]. Our valves are rated from 150 to 500 psig but can be tuned up to 1500 psig if required. Actuation pressure is normally 65 psig but can be lowered if needed. Custom requests are welcome.

NP = No Purge

ELDV1 ELDV2 **MDVG** Purged standard Purged high-performance Purged premium-grade Mini-diaphragm valve Mini-diaphragm valve Mini-diaphragm valve LT version: Max 100°C LT version: Max 100°C LT version: Max 100°C Pressure: Max 150 psig MT version: Max 180°C MT version: Max 180°C Port sizes: 1/16" and 1/8" Pressure: Max 300 psig HT version: Max 250°C Cross-port leak rate Port sizes: 1/16" and 1/8" Pressure: Max 500 psig Port sizes: 1/16" and 1/8" Max pressure: 9.0 x 10-9 atm-cc/s He Cross-port leak rate Max pressure: 4.7 x 10-11 atm-cc/s He Cross-port leak rate Max pressure: 3.0 x 10-12 atm-cc/s He

ELDV/MDVG series configuration (for other configurations, contact us)



*Ex.: MDVG-6-16MT-0-0,

mini-diaphragm valve grooved, with purge, 6 ports 0.030", fittings 1/16", 180°C, 500 psig, diaphragm AFPD-2, all SS-316L valves.



COMMON FEATURES DESCRIPTION

- Purge feature to prevent inboard/outboard contamination, fugitive emissions and permeation through the diaphragm (optional)
- 100% leak tested
- Elimination of dead volume effects
- Continuously swept flow path
- Tight positive port shut-off design
- Working pressures from vacuum to 1000 psig (or more)
- Usable with liquid or gas media
- Low pressure drop
- Independently controlled ports

DV series

This is the first real analytical tight shut-off diaphragm valve. It has multiple uses in gas chromatographic systems, autosamplers, sampling and general instrumentation. No dead volume effects, continuous flow path and purge systems make it ideal in many situations. From simple three-way to complex configurations with timing sequences, the job is easily done. Wide choice of configurations, from simple pneumatic actuator to fully loaded microprocessor-controlled electrical actuator. DV-series valves are available with welded tubes, VCR or analytical fittings. They can be made in a large selection of materials and configured for different operating conditions.

FIELDS OF APPLICATION

- · Gas chromatograph / liquid chromatograph / GCMS / LCMS
- On-line gas analyzer / various sampling systems
- Automated laboratory sample injection systems
- Sample preparation systems / sample concentration systems
- Continuous flow analyzer
- Purge and trap GC sampler / headspace sampling
- Total organic compound analyzer
- Automated process analyzer panel
- Refining and hydrocarbon analyzer / natural gas analyzer
- Ion chromatographic systems

Electric actuation

Available for all the DV-series valves

COMMON FEATURES

- Included diagnostic and configuration software
- Microprocessor-controlled motors
- Green power: consumes power only during actuation, sleep mode between actuations
- User-selectable default position; normally closed (NC) or normally open (NO), position selected on power up
- Servo loop torque controlled, compensating for long-term wear; maintaining sealing level over time

APPLICATIONS

- Electrically controlled sample stream selection systems
- Analyzer auto-calibration systems
- Built-in analyzer sample and calibration gas selection
- Liquid autosamplers
- Sample panel automation
- Purge and trap systems
- GC front-end sample processing (concentration/purification)
- Syringe pump / dispenser / diluter systems

ON/OFF STREAM CONFIGURATION SINGLE STREAM OPERATIONAL STATE #1



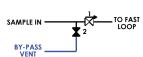
SAMPLE BY-PASS STREAM CONFIGURATION

SINGLE STREAM OPERATIONAL STATE #1

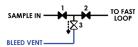
DOUBLE BLOCK & BLEED STREAM CONFIGURATION

SINGLE STREAM OPERATIONAL STATE #1

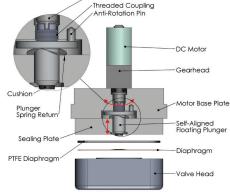
Motor drive adapter







DOUBLE BLOCK & BLEED POSITION : SAMPLE INLET CLOSED



ELECTRICAL VERSION



MRV series

- _ TREATED ROTOR, NO-STICKING ACTION
- LOW ROTATIONAL FORCE
- _ MOUNTING COLLAR DESIGN FOR ANTI-ROTATION ASSEMBLY
- EXTENDED PIN DESIGN DRIVE ADAPTOR (DOUBLE-STOP PIN FOR NO RADIAL FORCE)

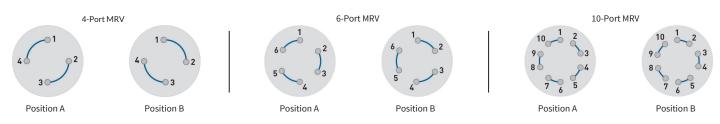
In many applications where a purge was not necessary and space inside instruments was limited, there was a need for a small form factor rotary valve. The MRV was designed from our purged rotary valve series (RV series) where our embedded purge system made this valve slightly bigger. We kept all our patented features from the RV series that were making it so reliable, like the double stopper, coated guide bushing drive adaptor, anti-rotational dowel pins and treated rotors.

MRV series (non purged)

Available with 4, 6 and 10 ports, Internal sampling (LSV) Port size available: 1/16"

Rotor R2 (modified PEEK) T = ambient to 225°C Pressure: 425 psig **Rotor R3** (modified polyimide) T = ambient to 225°C Pressure: 425 psig

Available flow path

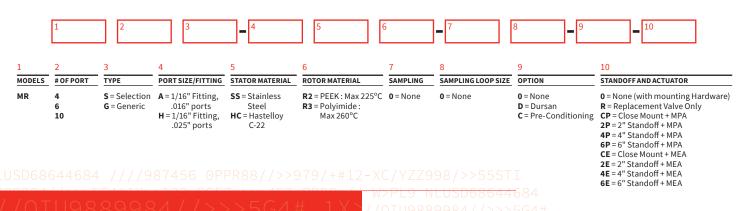


Acceptable media

	Gasoline	Strong Acids	Strong Bases	Hydrocarbons	Oxidizing Agents	Alcohols	Ketones	Esters	Steam	Max. Continuous Temperature
AFP™ PEEK	E	F	E	E	F	E	E	Е	Е	225°C
AFP™ Polyimide	F	F	Ν	G	Ν	E	G	Е	Ν	260°C

E: Exellent | G: Good | F: Fair | N: Not Recommended

MRV configuration (for other configurations, contact us)







MPA

Mini pneumatic actuator

The MPA was designed to be oven wall mounted with the smallest form factor. It's available with different standoff length. By its internal concept, this actuator is strong compared to its size. It's a low-cost actuator to be used with MRV valves.

- SMALLER FOOTPRINT ON THE MARKET
- _ HIGH TORQUE COMPARED TO ITS SIZE
- _ UP TO 125°C
- _ STANDOFF AVAILABLE LENGTHS: 2, 4, 6 INCHES
- _ DIRECT OVEN MOUNT AVAILABLE

MEA

Mini electrical actuator

Our electrical rotary actuator family makes sure to transfer only rotational forces. No radial or axial force is applied to the valve.

During normal operation, a software routine prevents valve overloading. Here, valve overloading is defined as hitting and positions against valve stoppers at each actuation. On request, the software will execute and record home position. By reducing the overloading action, our actuator is effectively increasing the valve's life. Experience shows that overloading on stopper and/or driver pin tends to engrave them resulting in valve malfunction. Our actuator has its own microcontroller that can be programmed in different ways. Positioning parameters, position feedback and other features can be transmitted to or received from the microcontroller. Many other AFP products can be linked to the actuator.

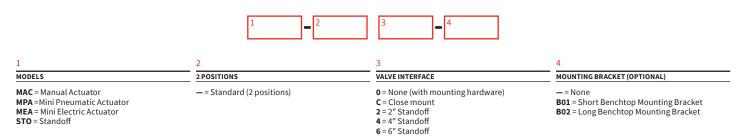
- TWO- OR MULTI-POSITION
- SOFTWARE-CONTROLLED ADJUSTABLE END OF TRAVELING POSITION
- NO RADIAL FORCE TRANSFERRED TO THE ROTOR
- SHIP WITH FILL IN THE BLANK TYPE CONFIGURATION SOFTWARE
- LABVIEW AND THIRD-PARTY SOFTWARE AVAILABLE

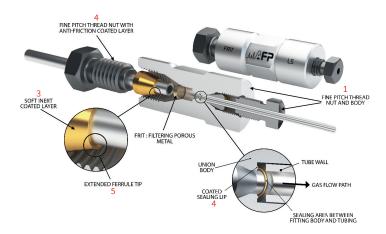


MAC Manual actuator, ergonomic design Standoff Available in 2", 4" and 6"



Actuator configuration (for other configurations, contact us)





AFP lip seal type

Introducing a new patent-pending fitting concept, this new design results in two levels of seal, much lower sealing torque required, and increased number of remakes. These are simply the best features. Look at our DR-3 design report in the technical section of our AFP cookbook, and see for yourself.

- 1 Ultra-fine pitch threads transfer the force to the ferrule in a much smoother way.
- 2 An anti-friction and anti-galling coating is applied to the front and the threaded portions of nut. This reduces the friction at least by an order of 10, eliminating the rotation of the ferrule when the nut is screwed in.
- 3 Gold-plated ferrules are used to insure an optimized sealing performance.
- 4 A fine lip has been added on the bottom of the detail; this creates a first metal to metal seal section with no dead volume, similar to VCR fitting.
- 5 The front portion of the ferrule is longer, in order to occupy more of the empty volume. Doing so reduces an eventual dead volume.

High performance analytical fittings

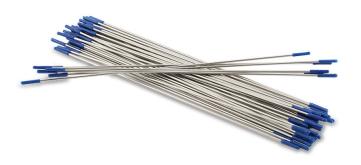
- 316L STAINLESS STEEL WETTED PARTS CONSTRUCTION
- NEW STACKABLE TEES AND CROSSES
- INTERCHANGEABILITY
- NO DEAD VOLUME EFFECT
- _ LEAK TESTED
- NO CLAMP RING REQUIRED FOR MOUNTING TEES AND CROSSES
- _ NO TUBING DEFORMATION

For several decades, fittings have been the same. Fittings are critical components of any analytical system. The level of sealing, dead volume or mechanical characteristics could vary dramatically based on manufacture process, even if externally they look the same. But don't get fooled; there are serious differences between them. Nothing looks more like a fitting than another fitting! Differences reside in details.

Standard fittings

Here we are offering a line of fittings that have, by design, improved characteristics. Internal finish, ferrule design, thread finish are some of the characteristic that have been improved. Practical details, like stackable crosses and tees, eliminate the need of mounting clamps and allow space saving. Low torque column end fittings and unions make 1/8" OD and 1/4" OD size tubing assembly much easier and better. Available in several materials and custom designs to fit OEM needs.





Pre-cut tubing

AFP has released its own line of pre-cut tubing for gas chromatography. These tubes are made from the highest-quality alloys such as SS-316L, Hastelloy C-22 and Monel 400 to ensure maximum performance and corrosion resistance.

Why use pre-cut tubing? To save time upon assembly since it is always perfectly cut square, without burrs or contamination, and already passivated.

Internal coating options include SilcoNert 2000 or Dursan for optimum inertness and corrosion resistance.

We offer a wide range of ID, OD and straight lengths.

1/16" OD	1/8" OD	Lengths
0.005" ID	0.085" ID	5 cm
0.010" ID		10 cm
0.020" ID		20 cm
0.030" ID		30 cm
0.040" ID		50 cm
		100 cm





Coiltube

We are also able to provide you the same quality seamless tube in coil. If you require any special length cut, just let us know and we will make you a quote.

Sampling loop

We have different sampling loops available from the AFP standard tubing range. This also includes the internally coated tubes.

Please note that when ordered with lip seal fittings, these will be preassembled, i.e. with fine pitch threads and low-friction coated fine pitch nuts, helping to prevent galling especially at high temperatures. This option includes gold-plated ferrules.



Powering performance with data

APN GLOBAL HAS BUILT A REPUTATION ON DEVELOPING PRACTICAL, EFFECTIVE SOLUTIONS THAT ARE PERFECTLY ADAPTED TO YOUR BUSINESS CONTEXT AND STANDARDS. WE GO WELL BEYOND THEORY AND DESIGN. WE CARE ABOUT DELIVERING CONCRETE AND TANGIBLE RESULTS THAT WILL BE NOTICEABLE ON THE SHOP FLOOR. EMPOWER YOUR BUSINESS DATA!

APN Global

APN GLOBAL IS MADE UP OF SIX OF NORTH AMERICA'S MOST INNOVATIVE AND BEST-PERFORMING COMPANIES. EACH ONE SPECIALIZES IN THE MANUFACTURING OF COMPLEX PARTS AND PRODUCTS IN ACCORDANCE WITH SPECIFIC CUSTOMER REQUIREMENTS AND THE HIGHEST INTERNATIONAL STANDARDS FOR INDUSTRIES SUCH AS AEROSPACE, DEFENSE, LIFE SCIENCES, AND THE COMMERCIAL SECTOR.



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