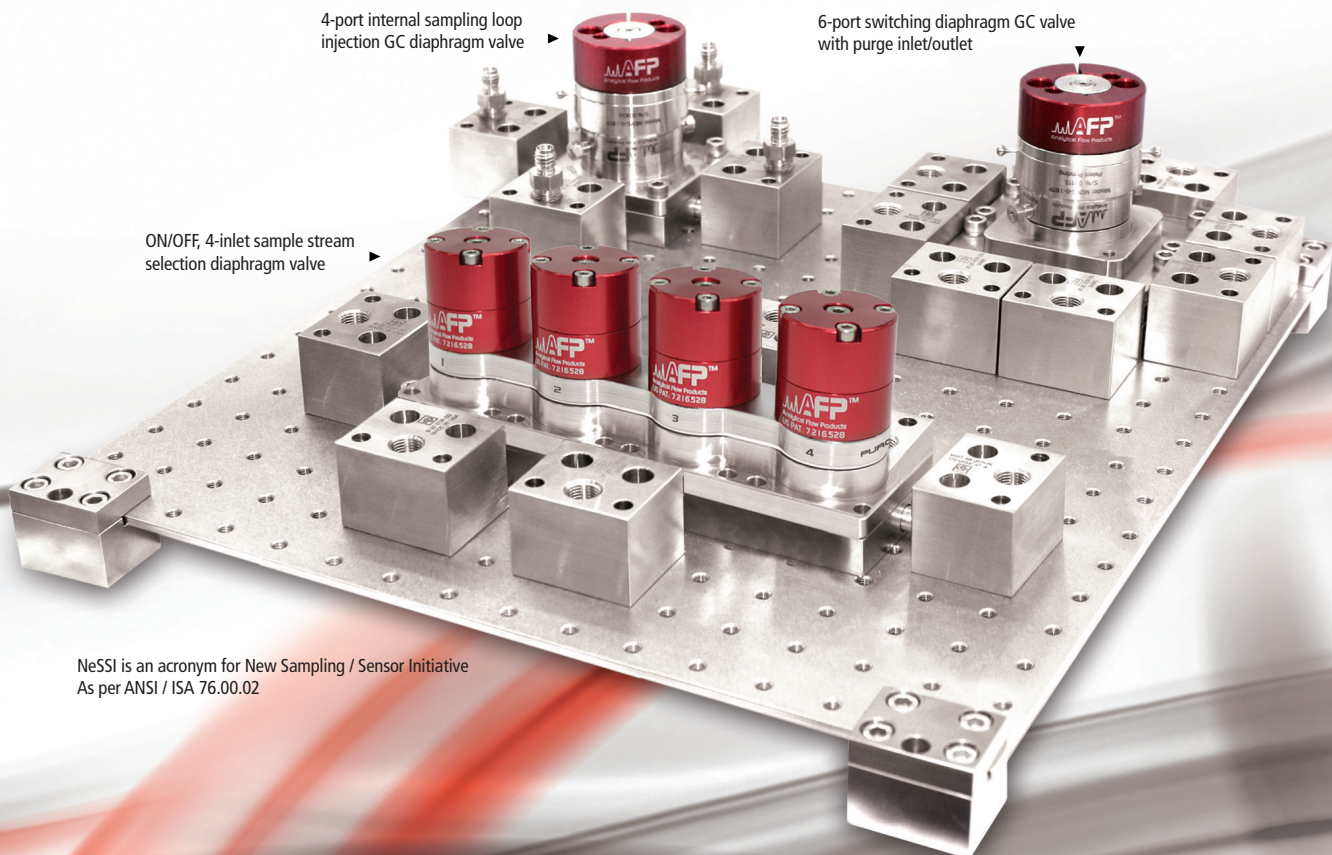


NeSSI PLATFORM

PRODUCT LINE

1.1	DV3-SERIES, 3-WAY DIAPHRAGM VALVE.....	3
1.2	DVS-SERIES, SAMPLE STREAM SELECTION DIAPHRAGM VALVE	4
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NeSSI is an acronym for New Sampling / Sensor Initiative
As per ANSI / ISA 76.00.02

INTRODUCTION

The NeSSI program has begun to simplify tasks, and reduce costs, associated with engineering, installing and maintaining chemical process analytical systems. The specific objectives of NeSSI are to increase process analytical system reliability through the use of increased automation and to shrink the physical size by means of miniaturization. Few years ago, we introduced a totally re-engineered diaphragm Valve Series with patented features never seen before. More recently, we have introduced these robust valves on the NeSSI platform. The innovations we brought to the lab are now available to the process industry – virtually “plug & play” - with all the benefits.

The first NeSSI diaphragm GC valves with 6 and 10 ports are now available, this is a world premiere. See the ELDV / MDVG series. Sample stream selection diaphragm valves

with ON/OFF, sample by-pass and double block and bleed configurations are also introduced here. No O-ring in the critical flowpath. Unique electronic actuation eliminates the need of solenoid valves and actuating gas. Direct digital interface, i.e. ON/OFF line control, predefined port position control and serial interface are also available.

The patented diaphragm design eliminates the risk of sample contamination by the actuating gas, like in the o-ring based design. This is the same for the fugitive emission. Ideal for very high purity sampling.

At the exception of the ELDV / MDVG series, all valves for the NeSSI standard are available with a choice of pneumatic or electronic actuator. Pneumatic may use where intrinsically safety is an issue.

PRODUCTS AVAILABLE FOR THE NeSSI PLATFORM

- **DV3, 3-way diaphragm valve**
 - Pneumatic actuation, i.e. DV3
 - Electronic actuation, i.e. EDV3
- **Sample stream selection**
 - Three configurations:
 - ON/OFF: Pneumatic or electronic actuation
 - Sample By-Pass: Pneumatic or electronic actuation
 - Double Block & Bleed: Pneumatic or electronic actuation
- **DGC, Tight shut-off diaphragm based GC injection valve**
 - Pneumatic or Electronic actuation
 - Internal or external sampling loop
- **Gas chromatographic valves (conventional flowpaths). A WORLD PREMIERE**
 - 6 ports (switching and internal / external sampling loop): Pneumatic actuation
 - 10 ports (double internal/external sampling loop): Pneumatic actuation

COMMON FEATURES DESCRIPTION

- Purge feature to prevent inboard/outboard contamination/fugitive emission and permeation through the diaphragm (optional).
- 100% Helium mass spectrometer leak tested.
- Elimination of any dead volume effects.
- Continuously sweeping flow path.
- Positive tight shut-off port design.(Except for ELDV/MDVG)
- Working pressure ranging from vacuum to 1000 Psig.
- Usable with liquid or gas media.
- Low pressure drop.
- Ports are independently controlled.
- Pneumatic version intrinsically safe.

DV3-SERIES 3-WAY NeSSI DIAPHRAGM VALVE

POSITIVE PORT SHUT-OFF DIAPHRAGM VALVE

■ DV-SERIES

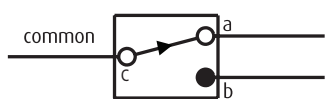
■ EDV-SERIES



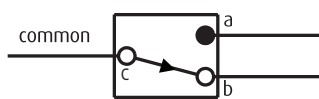
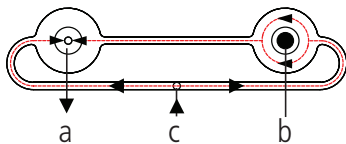
Pneumatic Actuation



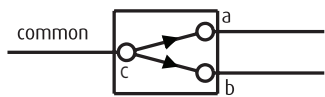
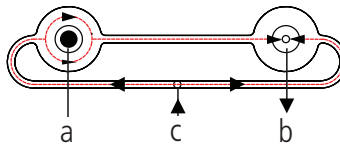
Electronic Actuation



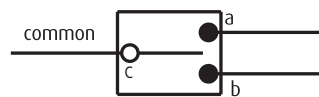
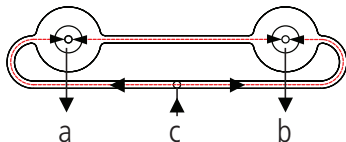
■ FIGURE 1A:
PORTS a OPEN AND b CLOSED



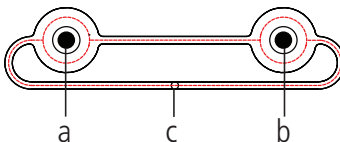
■ FIGURE 1B:
PORTS a CLOSED AND b OPEN



■ FIGURE 1C:
BOTH PORTS OPEN



■ FIGURE 1D:
BOTH PORTS CLOSED

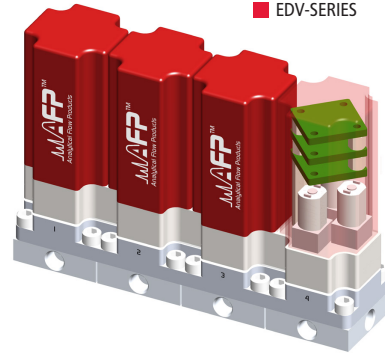


■ DV-SERIES



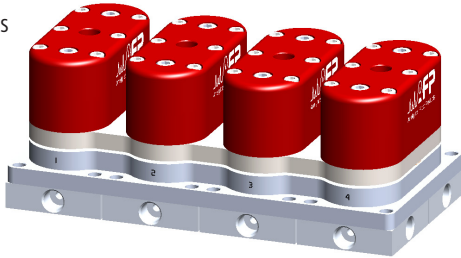
Pneumatic Actuation
ON/OFF Configuration

■ EDV-SERIES



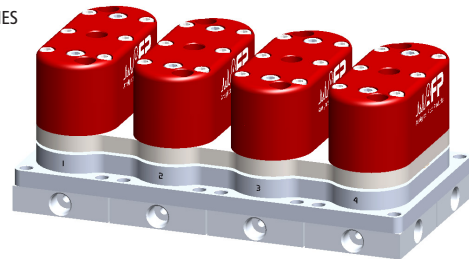
Electronic Actuation
DBB Configuration

■ DV-SERIES



Simultaneous Stream Port Pneumatic Actuation
Sample By-Pass Configuration

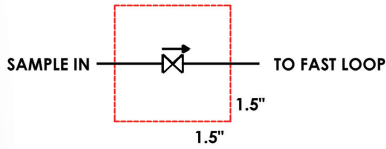
■ DV-SERIES



Independent Stream Port Pneumatic Actuation
Double Block & Bleed Configuration

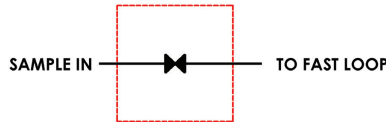
ON/OFF BLOCK CONFIGURATION

■ SINGLE BLOCK
OPERATIONAL STATE #1



OPEN POSITION

■ SINGLE BLOCK
OPERATIONAL STATE #2

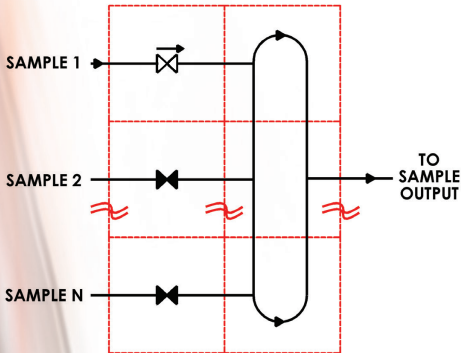


CLOSED POSITION

■ SINGLE BLOCK
FLOWPATH



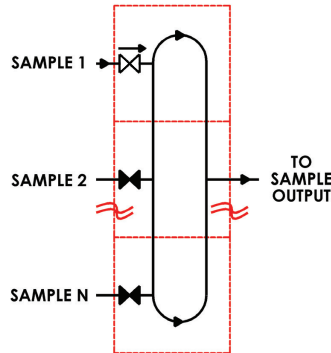
■ EXAMPLE OF SINGLE BLOCK CONFIGURATION
USE WITH FAST LOOP BLOCK



INDIVIDUAL
CHANNEL BLOCKS

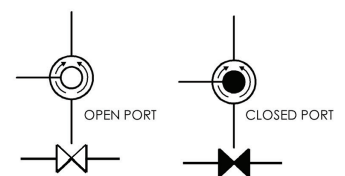
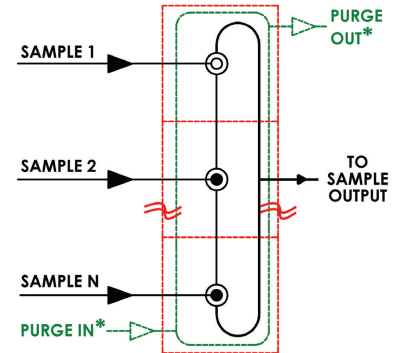
SEPARATED OPTIONAL
FAST LOOP BLOCK

■ MULTIPLE STREAM BLOCK
FLOWPATH SCHEMATIC



- ALL CHANNELS BUILT ON THE SAME SUBSTRATE
- INTERNAL FAST LOOP INCLUDED

■ MULTIPLE STREAM BLOCK
PHYSICAL FLOWPATH

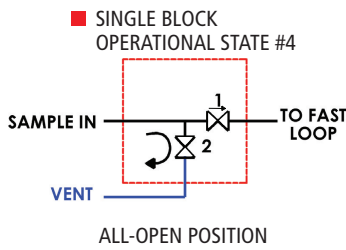
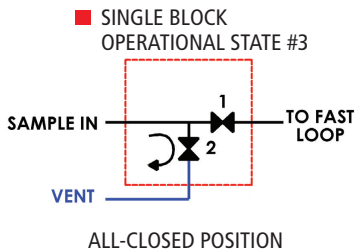
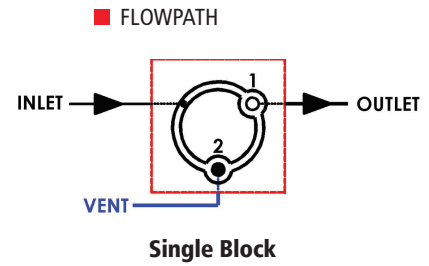
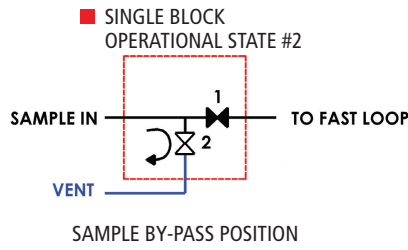
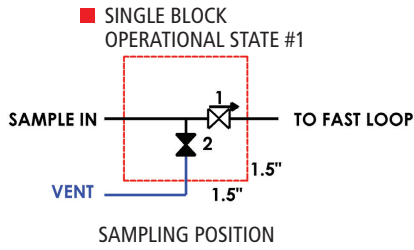


* PURGE IS AVAILABLE AS AN OPTION

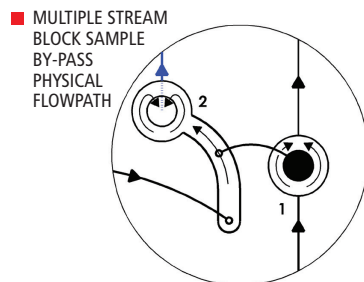
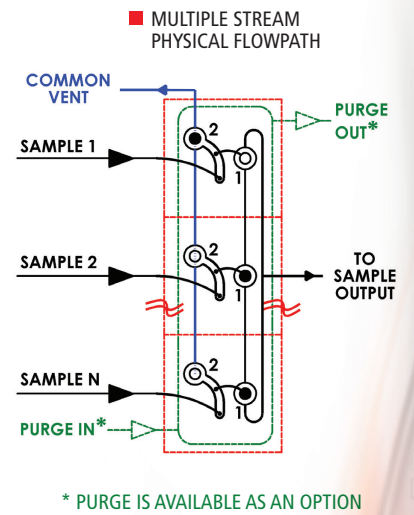
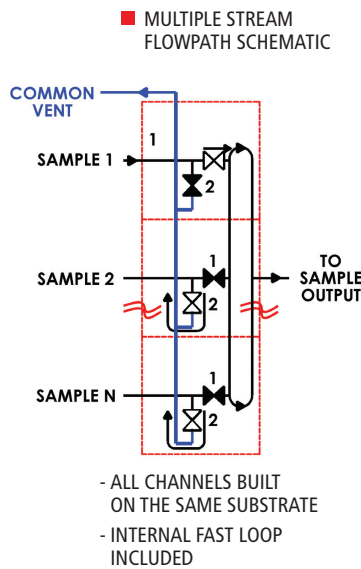
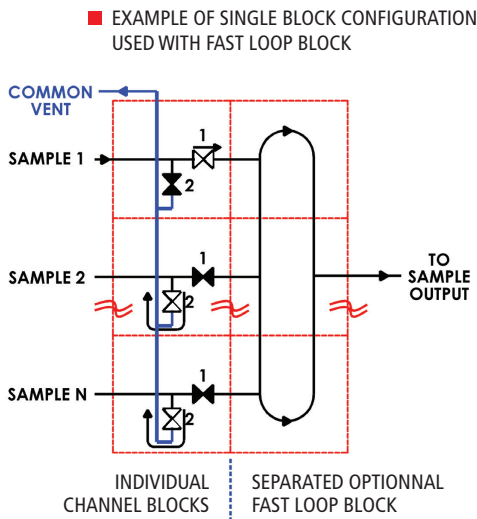
US. PAT. : 7.216.528

SAMPLE BY-PASS BLOCK CONFIGURATION

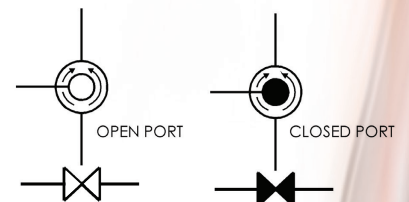
Note: Could be used as a 3-way valve with proper base block.



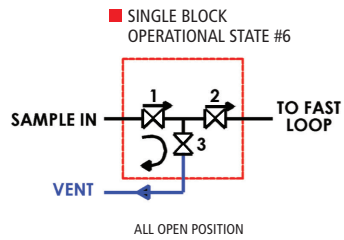
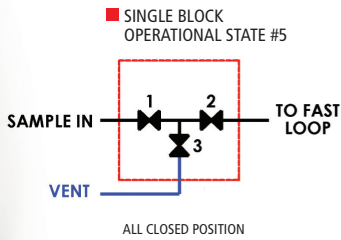
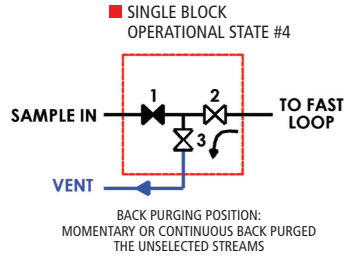
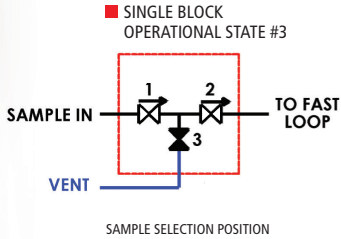
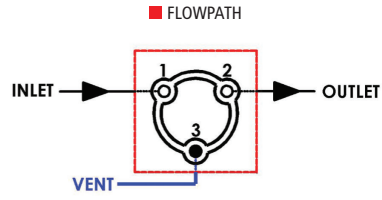
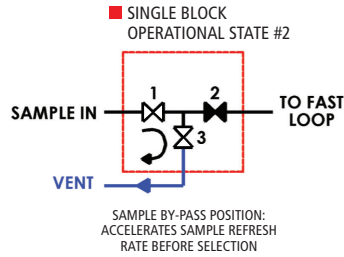
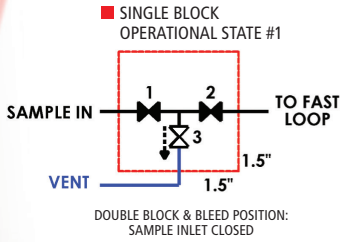
In all cases, the exit port is embedded in the flow loop, eliminating dead volume effect.



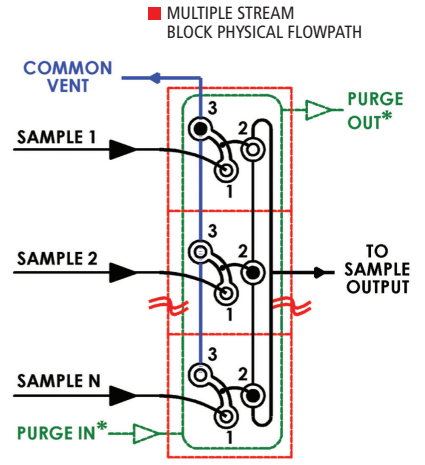
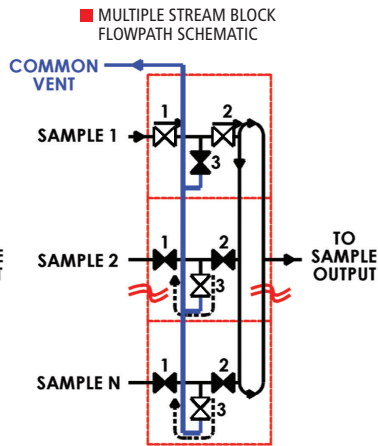
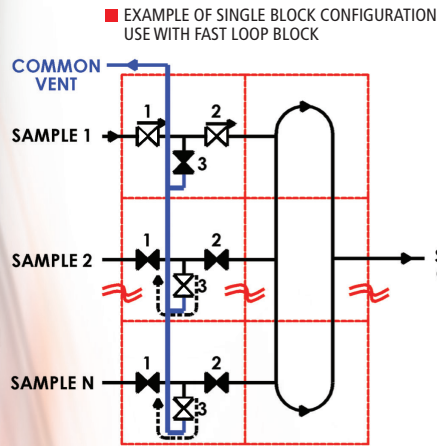
NOTE:
VALVE PORTS 1 & 2
CAN BE INDEPENDENTLY
CONTROLLABLE



DOUBLE BLOCK & BLEED BLOCK CONFIGURATION



In all cases, the exit port is embedded in the flow loop, eliminating dead volume effect.

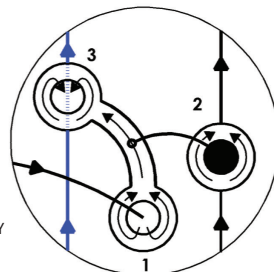


INDIVIDUAL CHANNEL BLOCKS SEPARATED OPTIONAL FAST LOOP BLOCK*

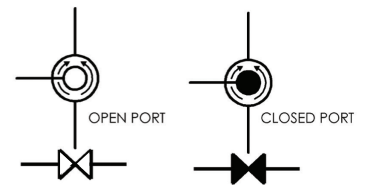
- ALL CHANNELS BUILT ON THE SAME SUBSTRATE
- INTERNAL FAST LOOP INCLUDED

* PURGE IS AVAILABLE AS AN OPTION

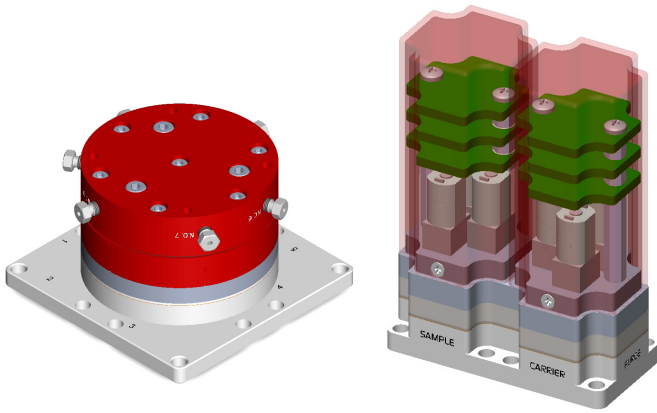
* THE OUTLET FAST LOOP BLOCK MAY BE ELIMINATED BY USING THE MOMENTARY BACK PURGING POSITION ON UNSELECTED STREAMS.



NOTE:
VALVE PORTS 1, 2 & 3 CAN BE INDEPENDENTLY CONTROLLABLE



DGC SERIES NeSSI TIGHT SHUT-OFF GC INJECTION DIAPHRAGM VALVE



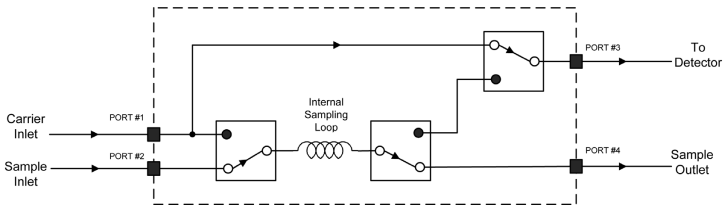
Pneumatic Actuation

Electronic Actuation

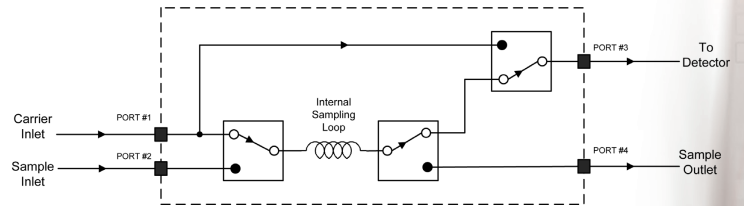
- Positive tight shut-off port design.
- 100% Helium mass spectrometer leak tested.
- Small plunger displacement for a short actuation time.
- All plungers could be independently controlled.
- Operation from vacuum to 1000 psig.
- Unique design that leads to new GC methods.
- Offers the possibility to monitor valve leakage, if any.
- Internal sampling loop available.
- Purge feature to prevent inboard/outboard contamination/fugitive emission and permeation through the diaphragm.

INTERNAL SAMPLING LOOP

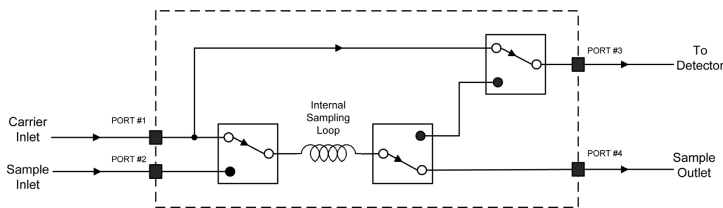
■ SAMPLING POSITION BLOCK SCHEMATIC



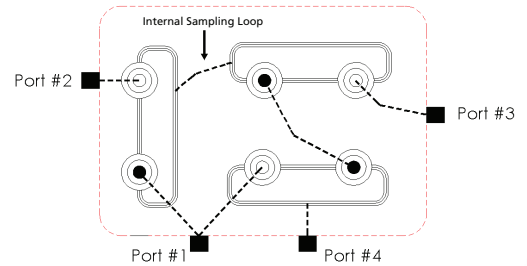
■ INJECTION POSITION BLOCK SCHEMATIC



■ WASHING SAMPLE VOLUME POSITION BLOCK SCHEMATIC

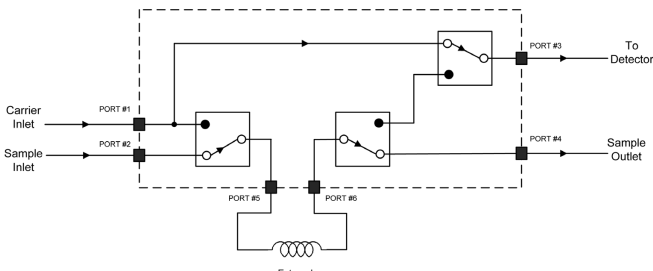


■ (E)DGC-ISL PHYSICAL FLOWPATH

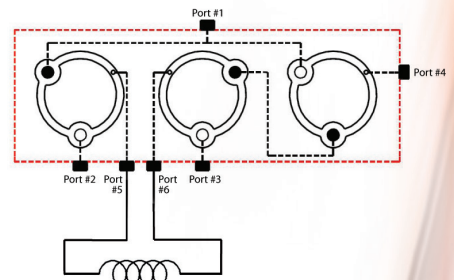


EXTERNAL SAMPLING LOOP

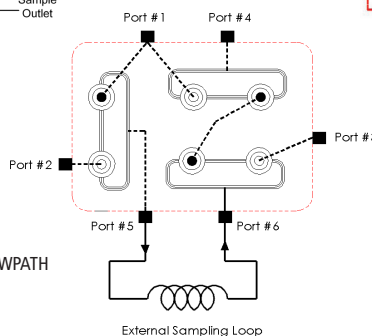
■ DGC BLOCK SCHEMATIC - CONFIGURATION



■ EDGC PHYSICAL FLOWPATH



■ (E) DGC-ESL PHYSICAL FLOWPATH

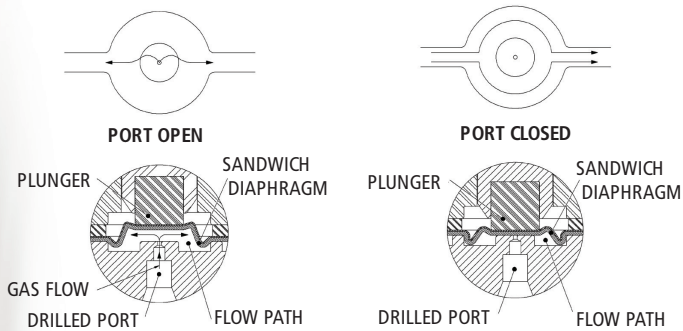


* Since all ports are independently controlled, other sequences are possible like sequencing injection, washing cycle, sample concentration, etc. See application note for more information.

SEAT OPTION



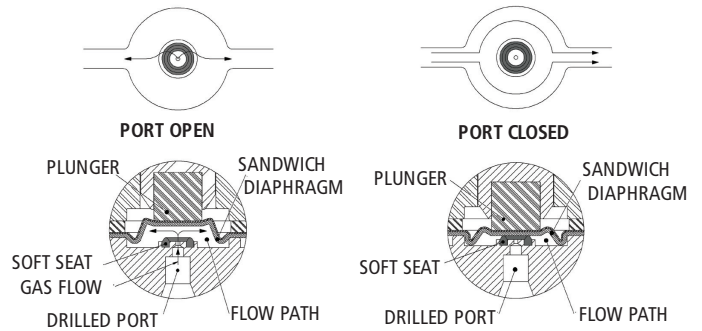
HARD SEAT



■ FIGURE 1A - Hard seat

■ FIGURE 1B - Hard seat

SOFT SEAT

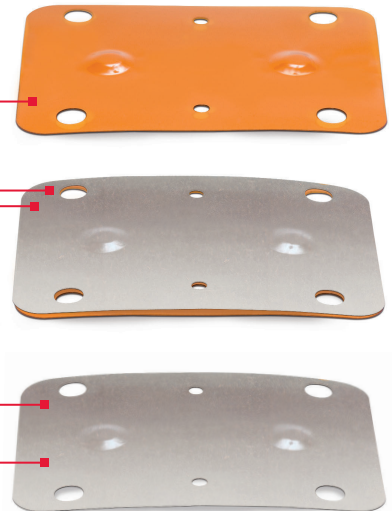


■ FIGURE 1C - Soft seat

■ FIGURE 1D - Soft seat

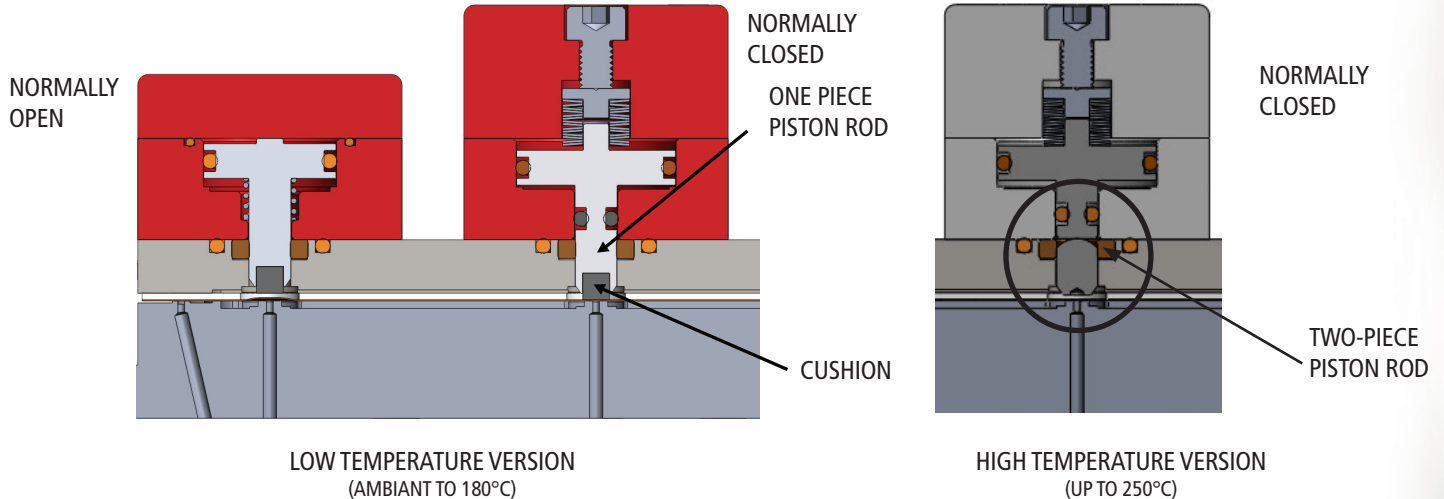
DIAPHRAGM MODEL, TYPICAL FOR DV3 SERIES

- Single layer of selected polymer (Polyimide/Teflon®/PEEK™)
- Multilayer Teflon®/Polyimide (general purpose, longer lifetime)
- Multilayer, very low absorption and permeation
- Metalized, i.e. selected polymer with metal deposition on it.
- Metal only (require valve head soft seat configuration) or coated valve's head
- Stacked layer
- Custom (example: Teflon®/Gold/Polyimide)



A pneumatic actuation is available for DV valve series, all stream selection valves and DGC chromatographic valves. The 6 and 10-port chromatographic valves have a built-in pneumatic actuator.

For all the above products, a simple 3-way solenoid valve can be used for actuation.



■ Figure 11

The DV series valves are especially designed for analytical systems. All ports are independently controlled by supplying the pneumatic actuating pressure to their corresponding piston. A port is closed when its associated piston is forced against the corresponding valve's seat, interrupting the flow by directly closing the port. This is what is called positive port shut-off action. The small displacement needed to close or open the port results in a fast switching time. Figure 11 shows a standard low temperature DV3 valve with independent actuator with a normally closed and a normally open configuration and a high temperature single block ON/OFF with a normally closed configuration.

The DV series valves could be used as simple stand alone valves or a multiple combinations of them could be used to realize complex applications.

The problems that plague many other valve designs to be efficiently used in analytical systems have been corrected. The elimination of any dead volume effects could be achieved with the continuous flow at all time into the valve internal fluid channel, and this even if a port is closed or open. The fluid will flow through an open port or around a closed one. The inboard/outboard leak rate is extremely low, and lower than the detection limit of many leak test systems. This is achieved by the use of a flexible diaphragm that seals the internal valve volume from the exterior environment.

In critical applications, an extra protection could be added by the action of purging/sealing grooves machined in the valve head that could be swept by an appropriate fluid media, a purge sealing plate allowing the circulation of the purging fluid on the back side of the diaphragm. This eliminates permeation problem through the diaphragm.

Pneumatic Valve Actuation Specification			
	DV SERIES	MDVG SERIES	
Actuation pressure (psig / kPa) (Process gas pressure of 300 psig)	60 / 415	65 / 450	
Actuation pressure (psig / kPa) (Process gas pressure of 1000 psig) In Option	125 / 860	70 / 485	
Gas Consumption per Actuation (in ³ / cc ³)	.030 / .50	6 ports	.045 / .75
		10 ports	.060 / 1.00

ELECTRONIC ACTUATION

ELECTRONIC ACTUATION IS AVAILABLE FOR THE DV3, ALL SAMPLE STREAM SELECTION AND DGC VALVES.

Common features:

- Microprocessor controlled motors
- Green Power: Consumes power only during actuation. Sleep mode between actuation.
- User selectable default position; normally closed (NC), normally open (NO). Position selected on power up.
- Servoloop torque controlled, compensating for long term wearing; maintaining sealing level over the time.
- Various interface for control:
 - Motor Direct Drive.
 - Digital input; Interface with PLC, dry contact, digital electronic.
 - Serial interface, allows daisy chain of multiple valve modules through RS-485.
 - Allows system status report and user's programmable timing sequence and control from PC or microcontroller.
- CE, RoHS

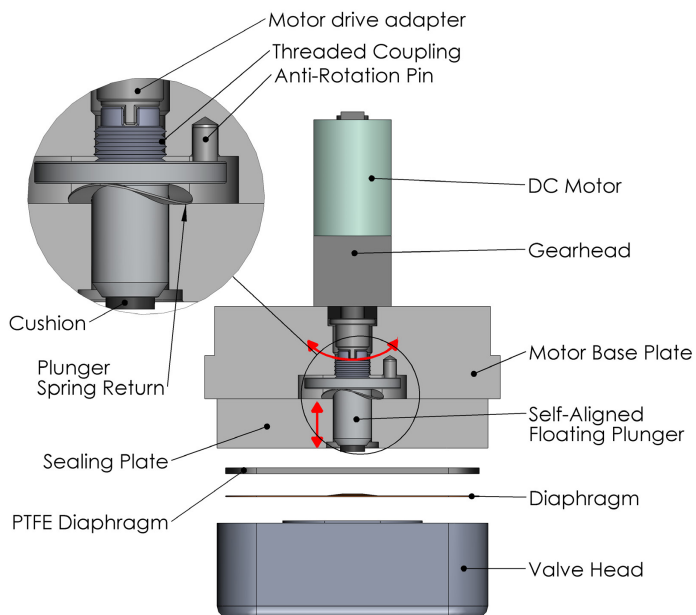
Applications:

- Electrically controlled sample stream selection systems.
- Analyzer auto-calibration systems.
- Built-in analyzer sample and calibration gas selection.
- Complex GC configurations.
- Sample panel automation.
- GC front and sample processing (Concentration/Purication)

ACTUATION MECHANISM

In general, port closing or opening is done by controlling a miniature DC motor. Depending on applied voltage polarity to the motor, the output shaft rotates in one direction (clockwise) or the other (counter-clockwise). Speed control is important. This allows the valve to be efficient in different pressure systems by controlling opening and closing parameters (speed, time and priority).

Mechanically, the shaft has a flat side, that is inserted into the motor drive adapter. It transfers the torque from the motor assembly to the threaded coupling through its flat end, which is inserted in the slot at the threaded coupling. The threaded coupling and the motor drive adapter are free to move up and down on the shaft when they rotate. The threaded coupling transfers the rotational torque into a vertical displacement. Then it pushes on a self-aligned plunger. The plunger does not rotate, thanks to the anti-rotation dowel pin. The side of the plunger facing the threaded coupling is treated to reduce friction and wearing while other side is fitted with a compressible cushion, which transfers the vertical force onto the sealing diaphragm. The other side of the diaphragm is facing the valve's seat. Pressing the diaphragm against the valve's seat shuts off fluid flow. Lifting it restores the flow. The plunger is self-aligned and free to move. When the threaded coupling is going up, the plunger will be lifted by the return spring, removing any force on the sealing diaphragm. This makes sure that there is no flow restriction when the valve port is fully open. See Figure 1.



■ FIGURE 1: Mechanical assembly

ELECTRONIC INTERFACE

Figure 2 shows the valve electronic actuation aspects. Each motor is controlled through an H bridge driver. The H bridge allows direction, speed and torque control over the motor. A pulse width modulation technique (PWM) and other parameters are used to reliably control valve operations regarding its specifications (pressure, speed, multiple actuation, diaphragm type).

Diaphragm valve LOW POWER consumption is a good AFP innovation. The mechanical design makes sure that there is no plunger movement when the power is shut off (or H bridge in low power mode) resulting in very low standby power compared to solenoid valve. Safety and application issues can be solved with this feature.

The valve operation could be controlled in three different ways. First, by simply using the corresponding digital input line; this mimics the traditional way to control closing or opening of a valve port. Applying voltage to a digital input line opens the

associated valve port, and vice-versa. The digital input lines are electrically isolated from the electronic control circuit. These inputs are low power inputs and can be connected to PLC, microcontroller digital outputs or dry contact relay.

The second method uses a predefined BCD (binary coded decimal) instruction format.

The third method is through the use of serial interface. Simple command could be sent to open or close a port. This is not doing more than using the discrete digital inputs for controlling the valve. The only difference is the serial interface is used, typically RS-485. Multiple valve modules could be daisy chained and controlled through a single serial interface freeing system digital outputs. The serial interface allows the use of the valve internal microcontroller to control various valve operation sequences, in a user programmed timing sequence.

■ The Figure 2 shows a simplified block diagram of the electronic actuation system.

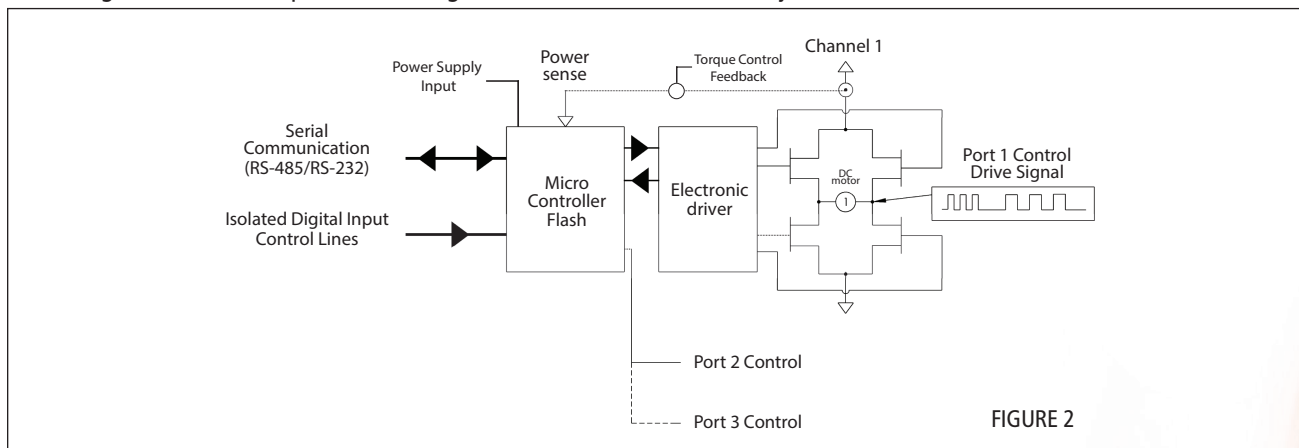


FIGURE 2

ELECTRONIC SPECIFICATION

TYPICAL FOR AN EDV54 : 4-INLET SAMPLE STREAM SELECTION VALVE

FEATURES:

- For any valve configuration, each port is independently controllable.
- No solenoid valve and tubing are required for actuation. This saves space, cost and setup time.
- Green actuation. Indeed, power is consumed only when the valve is actuated. Once the valve reaches its final position (open or closed), no more power is consumed. The valve switches to Standby power mode. For an ON/OFF configuration, the equivalent solenoid valve consumes between 7 and 10W to keep a port open. The EDV Standby is consuming less than 140 mW.
- Direct interface to PLC digital I/O, or any digital controller.
- Serial control interface: Control multiple inlets with a pair of wires.
- Real time wearing compensation: Constant torque.
- RS-485 AFP Command Interpreter
- Software tools availables
- Electric and environment self-diagnostic
- CE, RoHS

GENERAL SPECIFICATION

8 BITS MICROCONTROLLER WITH (RTC) REAL TIME CLOCK FOR PRECISE EVENT TIME		
LOG AND CONFIGURATION MEMORY	FLASH	1 MEG BYTES
RS-232	SPEED	9600 BAUDS
RS-485 (2 WIRES)	SPEED	9600 BAUDS
SUPPLY VOLTAGE MONITORING	ANALOG CONVERTER	10 BITS
INTERNAL TEMPERATURE MONITORING	ANALOG CONVERTER	10 BITS
MOTOR CURRENT MONITORING	ANALOG CONVERTER	10 BITS
OPERATING TEMPERATURE (ELECTRONIC MODULE)	FAHREHEIT (°F) CELSIUS (°C)	32°F TO 140°F ¹ 0°C TO 60°C
CE CONFORM , ROHS		

Note 1 : From the temperature specification. It is important to note that the maximum mechanical temperature " valve body" could be much higher and does not affect the electronic module.

ELECTRICAL SPECIFICATION

SUPPLY VOLTAGE INPUT RANGE (TRANSIENT AND REVERSE POLARITY PROTECTOR)	MIN	8 Volts DC
	MAX	24 Volts DC
STANDBY POWER CONSUMPTION	TYPICAL	140 mW ²

Note 2 : This power is consumed only when port is actuated. Between actuation maximum power consumption is less then 140 mW .

DIGITAL AND CONTROL INPUT

INPUT PROTECTION	ALL INPUT	DIGITAL ISOLATED
INPUT VOLTAGE AND CURRENT RANGE TO OPEN A PORT	5 Volts DC 12 Volts DC 24 Volts DC	1.6 mA 2.5 mA 5.1 mA
PORT ACTUATION CAN BE CONTROLLED BY SERIAL PORT		
IN NORMAL MODE, PORT CONTROL IS "COMPATIBLE" TO A NORMALY CLOSE PNEUMATIC VALVE PORT OPEN = 5 TO 24 VOLTS PORT CLOSE = GND OR NOT CONNECTED		

ELECTRICAL POWER CONSUMPTION DURING PORT ACTUATION @ 500 PSI

OPENING POWER	MAX AVERAGE	2000 mW ² 1500 mW ²
CLOSING POWER	MAX AVERAGE	2400 mW ² 2000 mW ²
CLOSING OR OPENING TIME (ACTUATION TIME)	TYPICAL	300 msec. ³

Note 2 : This power is consumed only when port is actuated. Between actuation maximum power consumption is less then 140 mW .

Note 3 : Configurable upon application and pressure

CONTROL MODE TABLE

ON - OFF CONFIGURATION HAS ONE CONTROLLABLE PORT.

Operation description	Serial mode	Standard Mode	*BCD mode digital inputs	Valve port State
	AFP Commands	Digital Input	Digital Input	
		1	1	1
Port closed	closed	0	0	C
Port open	open	1	1	0

1 = Digital input supplied 0 = Digital input to ground 0 = Open C = Closed

THE SAMPLE BY-PASS CONFIGURATION HAS TWO CONTROLLABLE PORTS.

Operation description	Serial mode	Standard Mode		*BCD mode digital inputs		Valve port State	
	AFP Commands	Digital Input		Digital Input			
		2	1	2	1	2	1
Sample Selected	Sample	0	1	0	1	0	C
Sample by-pass	By-pass	1	0	1	0	C	0
All ports closed	All closed	0	0	0	0	C	C
All ports open	All open	1	1	1	1	0	0

1 = Digital input supplied 0 = Digital input to ground 0 = Open C = Closed

THE DOUBLE BLOCK & BLEED HAS THREE CONTROLLABLE PORTS.

Operation description	Serial mode	Standard Mode			*BCD mode digital inputs			Valve port State		
	AFP Commands	Digital Input			Digital Input					
		3	2	1	3	2	1	3	2	1
Sample selected	Sample	0	1	1	0	0	1	C	0	0
Sample by-pass	By-pass	1	0	1	0	1	0	0	C	0
Back purging unselected streams	Back Purge	1	1	0	0	1	1	0	0	C
Sample isolated, bleed port open	DBB	1	0	0	1	0	0	0	C	C
All ports closed	All closed	0	0	0	0	0	0	C	C	C
All ports open	All open	1	1	1	1	1	1	0	0	0

1 = Digital input supplied 0 = Digital input to ground 0 = Open C = Closed

* BCD control mode is selected with the help of the internal dip switches. Please see user's instruction for detail.

In BCD and serial control modes, the driver makes sure that valve ports are operated in the appropriate sequence, i.e., for example, break before make.

ELDV/MDVG SERIES HIGH PERFORMANCE NeSSI GC DIAPHRAGM VALVE (CONVENTIONAL FLOWPATH)



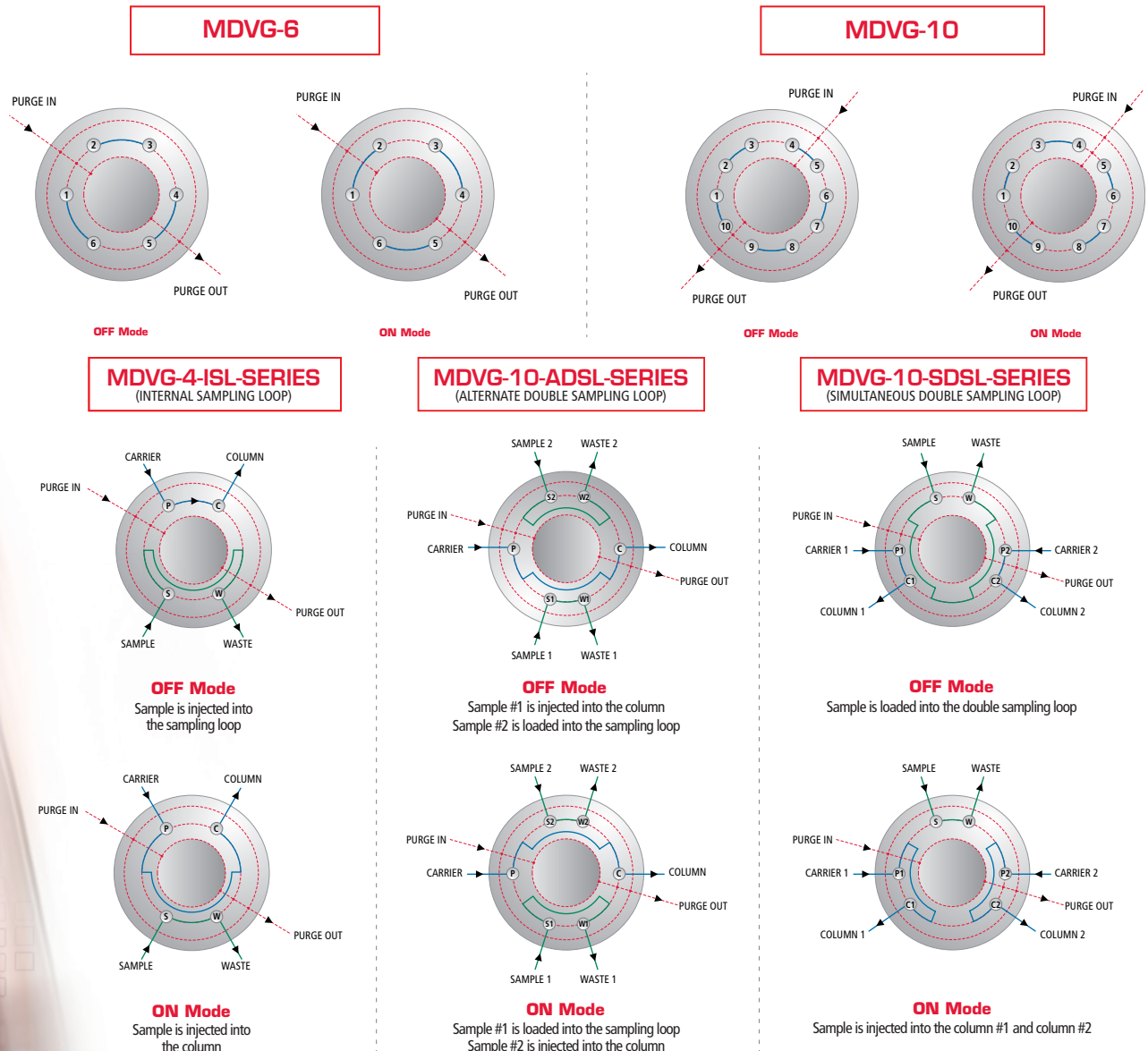
- Eliminates/reduces detector upset and valve artifacts.
- Allows new GC methods, not feasible with commercial GC diaphragm valves.
- Parts traceability.
- 100% Helium mass spectrometer leak tested.
- Purge feature to prevent inboard/outboard contamination/fugitive emission and permeation through the diaphragm.

Two actuation types :

ELDV2: Better leak performance and lifetime at medium cost, low and medium temperature grade.

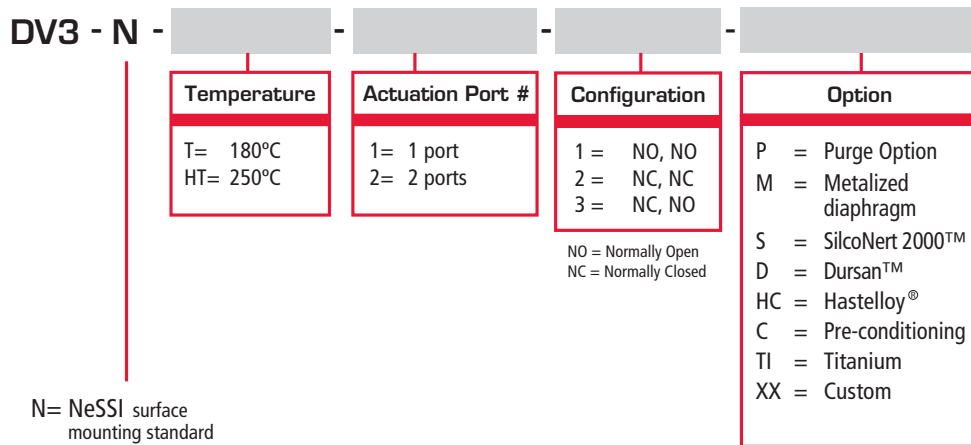
MDVG: Premium grade, very high performance valve, low, medium and high temperature grade.

FLOWPATH ON/OFF

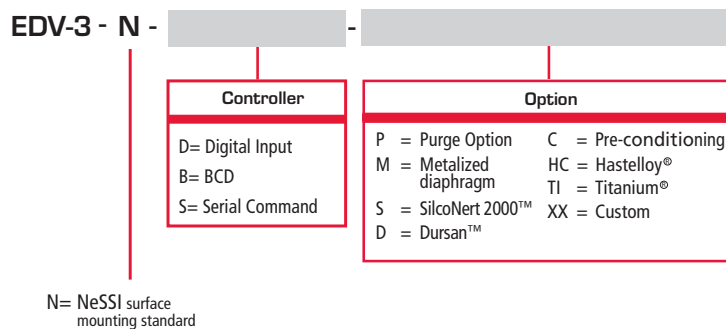


NeSSI PLATFORM

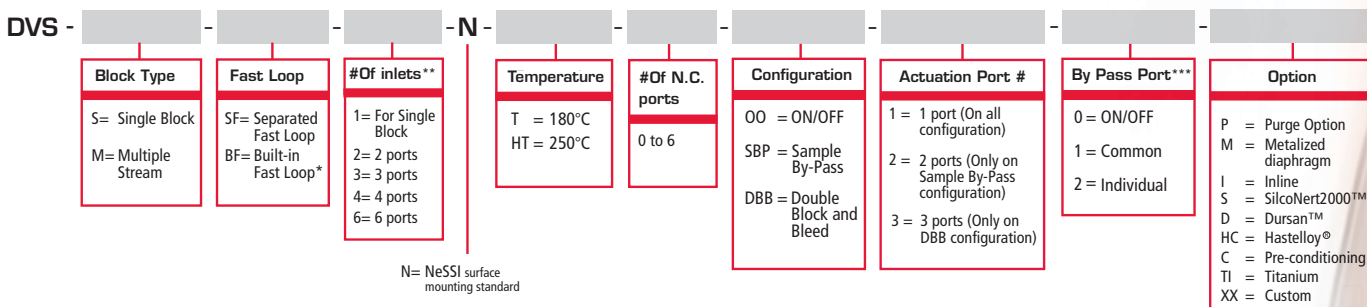
DV3-SERIES (3-WAY NeSSI DIAPHRAGM VALVE) CONFIGURATION / PNEUMATIC ACTUATION



EDV-3 SERIES (3 WAY NeSSI DIAPHRAGM VALVE) CONFIGURATION / ELECTRONIC ACTUATION



DVS-SERIES (SAMPLE STREAM SELECTION NeSSI DIAPHRAGM VALVE) CONFIGURATION / PNEUMATIC ACTUATION

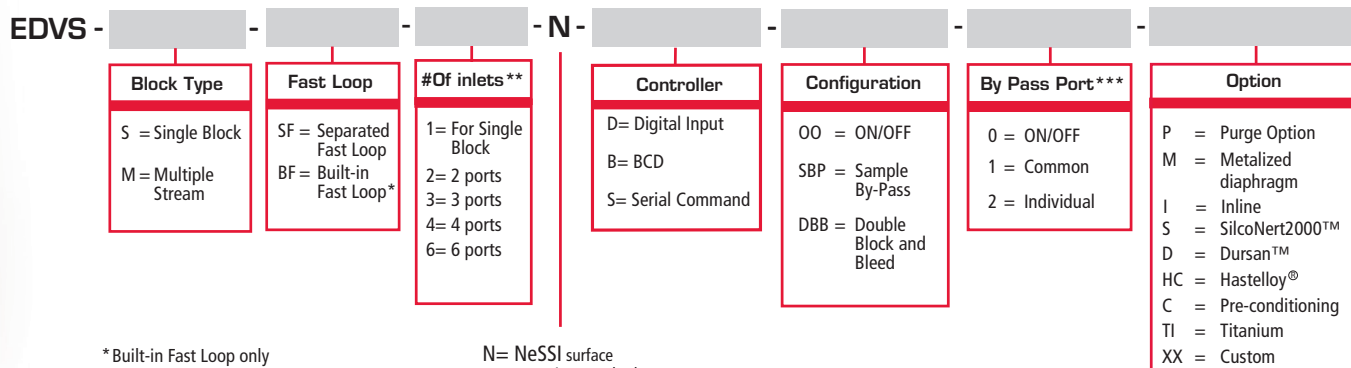


* Built-in Fast Loop only available with Multiple Stream configuration

** When ordered as a single block, only one inlet is available

*** 0= ON/OFF = When used with ON/OFF configuration
1= Common = One common port for all channels
2= Individual = One port for each channel

EDVS-SERIES (SAMPLE STREAM SELECTION NeSSI DIAPHRAGM VALVE) CONFIGURATION / ELECTRONIC ACTUATION



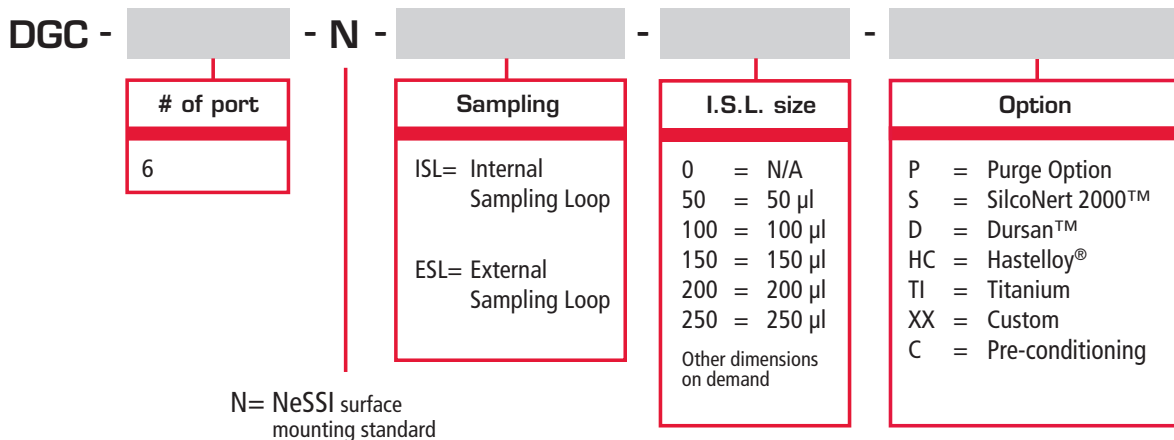
* Built-in Fast Loop only available with Multiple Stream configuration

N= NeSSI surface mounting standard

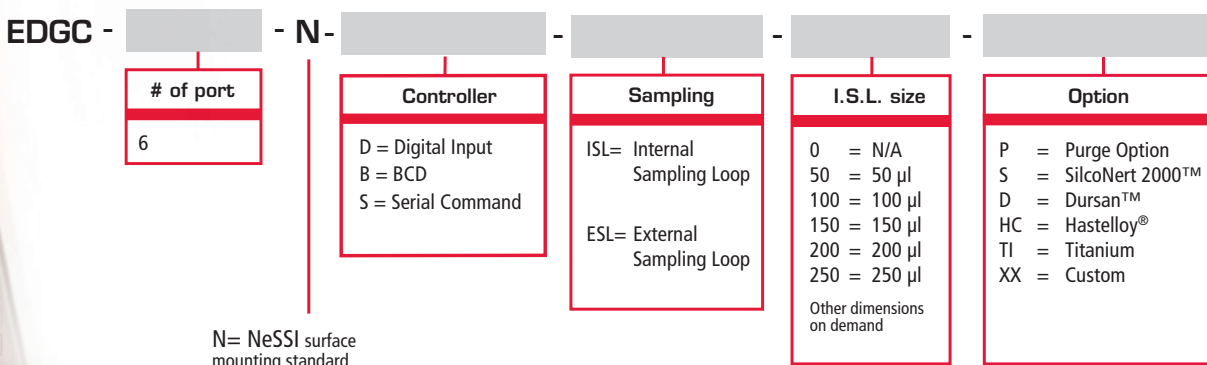
** When ordered as a single block, only one inlet is available

*** 0= ON/OFF = When used with ON/OFF configuration
1= Common = One common port for all channels
2= Individual = One port for each channel

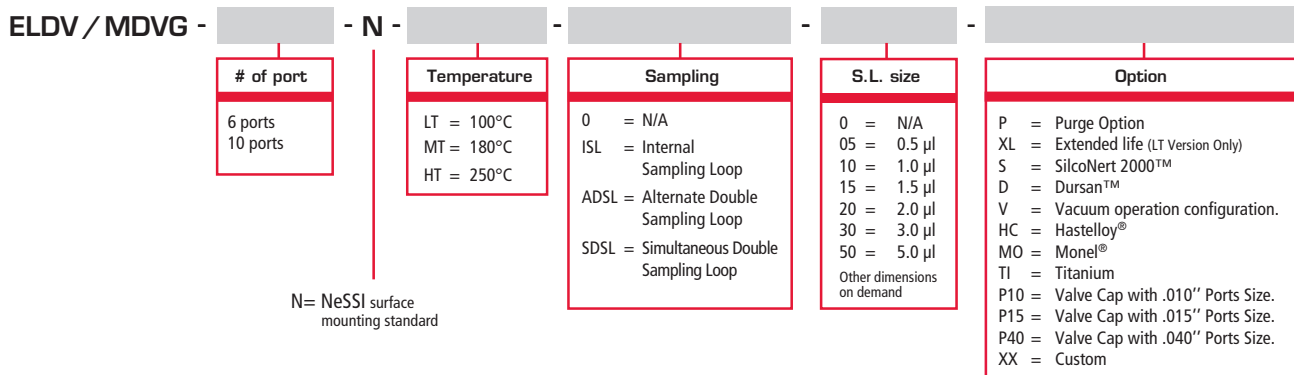
DGC SERIES (NeSSI TIGHT SHUT-OFF GC INJECTION DIAPHRAGM VALVE) CONFIGURATION / PNEUMATIC ACTUATION



EDGC SERIES (NeSSI TIGHT SHUT-OFF GC INJECTION DIAPHRAGM VALVE) CONFIGURATION / PNEUMATIC ACTUATION



ELDV/MDVG SERIES (HIGH PERFORMANCE GC DIAPHRAGM VALVE) CONFIGURATION / PNEUMATIC



Option

- P** = Purge option (included in MDVG series). Prevents inboard/outboard contamination and permeation through diaphragm.
- XL** = Extended life (for LT temperature grade only).
- S** = SilcoNert 2000™ The ultimate passivation of treated surfaces. A required treatment for metal components when analyzing for parts-per-billion levels of organo-sulfur compounds & mercury. Greatly reduce moisture contamination, improve system performance and eliminates surface adsorption of active compounds on steel.
- D** = Dursan™ is a coating designed to improve the inertness, hardness, and corrosion resistance of stainless steel. Ideal for sulfur, H₂S, mercaptan, ammonia and mercury sampling.
- C** = Pre-Conditioning. The valve is shipped with an inert pre-conditioned internal environment (He, N₂, etc.). Accelerates start up.
- V** = Vacuum operation configuration.
- HC** = Valve Head made of Hastelloy®.
- MO** = Valve Head made of Monel®.
- TI** = Valve Head made of Titanium.
- P10** = Valve Head with .010" Ports Size.
- P15** = Valve Head with .015" Ports Size.
- P40** = Valve Head with .040" Ports Size.
- XX** = Custom request.

DIMENSION : Refer to website www.afproducts.ca

CLEANING PROCESS

Please refer to our web site for AFPC-2 i.e. AFP cleaning procedure for O₂ compatibility.

LEAK TESTING

Leak rates are verified at maximum operation conditions. See engineering note EN-01 for more information, available on our website. Verified on a VARIAN™ helium leak mass spectrometer detector and on AFP® proprietary online leak detection system.

WARNING: NOT TO BE USED IN LIFE SUPPORT EQUIPMENT WITHOUT FORMAL AGREEMENT OF AFP®.

Based on a specific valve configuration and working condition, warranty period and valve maintenance procedure (i.e. part replacement) are different. Please refer to Analytical Flow Products™ specific valve documentation for more information.

It is still the responsibility of the user to make sure that the selected valve configuration is safe and reliable for his application.

Analytical Flow Products engineering team will do their best to help customers for any application that may require custom modification. Analytical Flow Products will be please to supply demonstration parts to qualified OEMs.

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