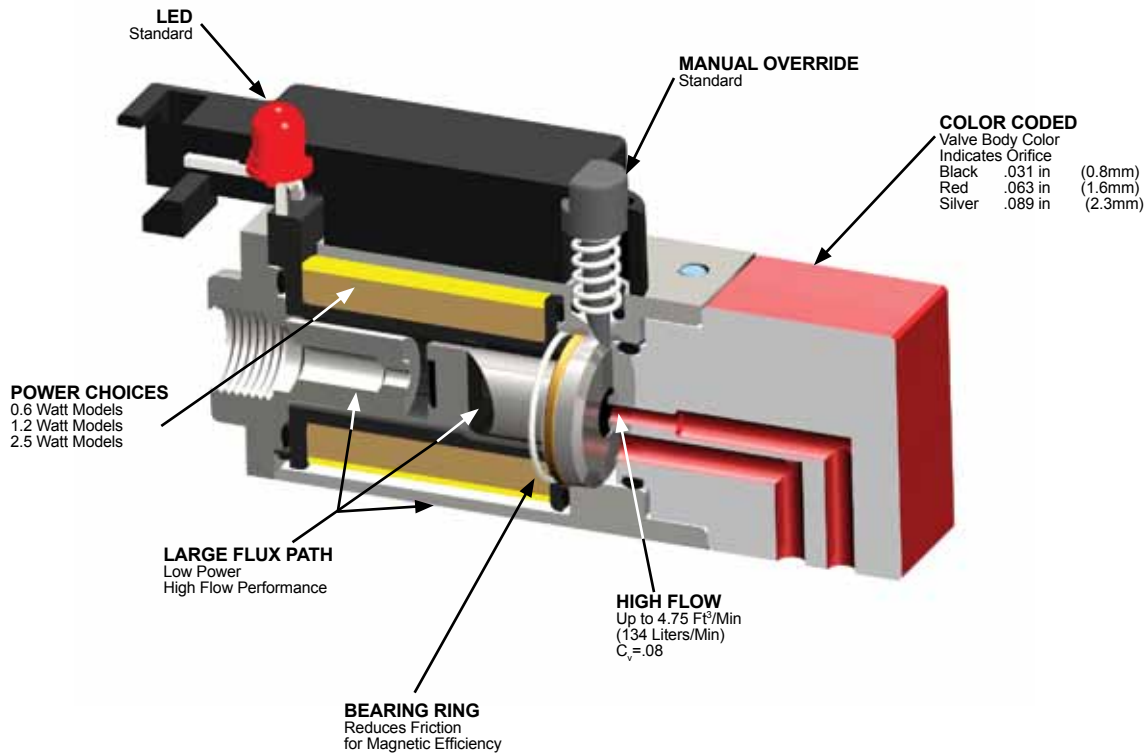


## DASH 1 QUALITY DESIGN FEATURES



**LIFE**  
100,000,000 Cycles Typical  
500,000,000 Cycles Achievable

**CONNECTOR**  
Choice of DIN, Electronic, PC Board, or Flying Leads

**REPEATABILITY**  
Precise Duplication of Response

**FAST RESPONSE**  
Over 160 Cycles/Sec & 3-6 ms Shift Time  
500 Hz achievable

**VACUUM**  
Suitable for Vacuum Applications

**CONFIGURATIONS**  
Valves Available as Normally Open  
or Normally Closed

**MINIATURE SIZE**  
Allows .630 in (16mm) Valve Spacing

**MINIMAL PARTS**  
For Reliability and Simplicity

**MANIFOLDS**  
Large Choice of Models

**PRECISION FIT**  
For Optimal Speed (response) and Flow

## D123201 VALVE

Shown with 2458-0 Removable Electronic Connector (Connector sold separately)



## FLYING LEADS VALVE

D152604 Shown with 211-1 Fittings (Fittings not included)



## D113301 VALVE

Shown with 2270-0 Removable DIN Connector (Connector sold separately)



## INTRODUCTION

DYNAMCO'S DASH 1 valve family is based on a direct solenoid poppet that can be either a three way (3/2) or a two way (2/2) valve. The DASH 1 is a precision combination of miniature size, fast response, high flow, low power, and long life. There are several valve versions in the DASH 1 family. Cataloged models include: ports in body, manifold mount, adapter plate, PC board mount, and 1/8 pipe-stud output.

## MINIATURE SIZE

DASH 1 can be mounted on .630 inch (16mm) centers. For dimensions, please see pages 9, 11, 12, and 13.

## HIGH SPEED

DYNAMCO's DASH 1 will oscillate over 160 cycles per second using conventional electronics. Some customers have utilized enhanced electronics and achieved speeds as high as 500 cycles per second. A DASH 1 valve will shift from a standing start in 3 to 6 milliseconds.

## REPEATABILITY

Many applications require very consistent operation. DASH 1 has unmatched repeatability. This consistency continues month after month, year after year over a broad range of temperature and humidity. While this is a difficult parameter to quantify, the best proof lies in the reputation of our products with long term customers.

## LOW ELECTRICAL POWER

DASH 1 is offered in three power levels: 0.6 watt, 1.2 watt, and 2.5 watt. Page 8 illustrates a comparison of performance and power requirements. Electrical Specifications are shown on page 7.

## COLOR CODING

A color coding system is used to identify a DASH 1 valves orifice size.

- Black: .031 inch (0.8mm) orifice
- Red: .063 inch (1.6mm) orifice
- Silver: .089 inch (2.3mm) orifice

## HIGH FLOW

The .031 inch (0.8mm) model has a  $C_v$  of .02 and provides air flow of 1.25 cubic feet per minute (35 liters per minute). The .062 inch (1.6mm) orifice has a  $C_v$  of .04 and provides air flow of over 3 cubic feet per minute (85 liters per minute). The .089 inch (2.3) orifice has a  $C_v$  of .08 and provides air flow of 4.75 cubic feet per minute (134 liters per minute) See flow curves on Page 8.

## LONG LIFE

The design life of DYNAMCO's DASH 1 valves is 100 million cycles. When operated within its recommended operating specifications, laboratory tests and field experience have confirmed life well in excess of this.

## LED INDICATOR

DASH 1 valves have a standard LED indicator. **Note:** Take care to connect the positive wire (red) to the #1 or + terminal and the negative wire (black) to the #2 or -terminal when attaching the signal wires to the connector. If the polarity is reversed, the valve will work, but the LED will not illuminate. If the LED appears dim, check the voltage level supplied to the solenoid. It is probably below the minimum rated level.

## MANUAL OVERRIDE

A manual override is standard on all cataloged DASH 1 valves. Depress the button with your finger or a small screwdriver and the armature is mechanically actuated just as if the solenoid is energized. It is non-locking and spring returned.

## QUALITY

Quality must be present in both design and manufacturing. Our strict standards ensure the DASH 1 valve is the highest quality design available. **We are an ISO 9001:2008 certified company.**

DYNAMCO manufactures nearly all components for DASH 1 in its own manufacturing facility. Every DASH 1 is given a complete battery of tests at various stages of manufacture. DYNAMCO's care and attention to detail mean you receive a thoroughly proven product when it is finally given the DYNAMCO name and packed for shipment.

# Dash 1 Valves



## PORTS-IN-BODY

The DASH 1 Ports-in-Body valve provides inlet, outlet, and exhaust ports suitable for 10-32 or M5 fittings. There are also two sets of holes provided for mounting the valve.  
*See drawing on page 9.*



**PORTS-IN-BODY VALVE**  
D112202 Shown with 211-2 Fitting  
(Fittings not included)

## MANIFOLD MOUNTING

DASH 1 offers a manifold version which can be mounted as close as .630 inch (16mm) center distance. It features a recessed gasket that will not blow out. The DASH 1 valve can be removed from a manifold by unscrewing the two M3 valve mounting screws.  
*See drawing on page 11.*



**MANIFOLD MOUNT VALVE**  
D123201 Shown

## ADAPTER MOUNTING

The adapter mounting is useful when the shortest length DASH 1 needs to be mounted to a flat surface. This feature can also be used to adapt the DASH 1 as the operator for another valve.  
*See drawing on page 9.*



**ADAPTER MOUNTING VALVE**  
D113203 Shown

## 1/8 PIPE STUD OUTPUT

The DASH 1 valve can be ordered with either a 1/8 NPT or a 1/8 BSPP male stud output. This configuration is ideal for both mounting and making a pneumatic connection to pneumatic cylinders, actuators and to the pilot ports of larger valves.  
*See drawing on page 9.*



**1/8 PIPE STUD OUTPUT**  
D113304 Shown

## CONNECTOR OPTIONS

The DASH 1 valve is available with electronic connector, DIN connector, PC Board mounting, or 'Flying Leads'. Flying leads are available in standard lengths of either 16 or 80 inches. For large quantities, we can design a valve with a custom connector or flying leads of a custom length.  
*More information about connector options can be found on page 6.*

## FUTURE BODIES AND SPECIAL BODIES

DYNAMCO's unique body attachment is designed to accommodate new design valve body configurations, and our skilled engineers can work with you to design a custom valve for your unique application.



**SOLENOID OPERATOR ONLY**  
D113200 Shown

## DIN CONNECTOR

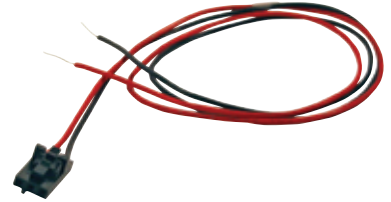
Use the DIN connector where maximum durability is needed. The terminals on the solenoid operator are also compatible with fast-on type wire terminals. The removable DIN connector must be ordered separately.



REMOVABLE DIN CONNECTOR P/N 2270-0

## ELECTRONIC CONNECTOR

Use the electronic connector for low profile compact applications. The positive wire is red and the negative wire is black. The removable electronic connector must be ordered separately.



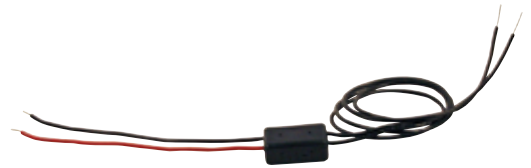
ELECTRONIC CONNECTOR 16 IN (40 cm) P/N 2458-0  
80 IN (200 cm) P/N 2458-2

## ALTERNATING CURRENT (AC) OPERATION

When AC electrical signals are to be connected to a DASH 1 valve (or DASH 2 or DASH 3 valves using a DASH 1 solenoid operator), use one of DYNAMCO's AC lead wires. DYNAMCO's AC lead wires contain a full wave bridge rectifier and a surge suppressor. This converts the AC to rectified AC with circuit protection which is suitable for use with a DASH 1 DC solenoid operator of the same voltage. See schematic below. Note the AC connections have no polarity. The rectified AC is color coded red for positive and black for negative.

## AC LEAD WIRES

For DIN connector applications, attach DYNAMCO's AC Lead Wires to the terminal strip of the electronic controller and splice the other ends to a cord leading to the DIN connector. Fast-on terminals can simply be crimped on the valve end of the AC Lead Wires.



AC LEAD WIRES 16 IN (40 cm) P/N 2588-7  
80 IN (200 cm) P/N 2598-7

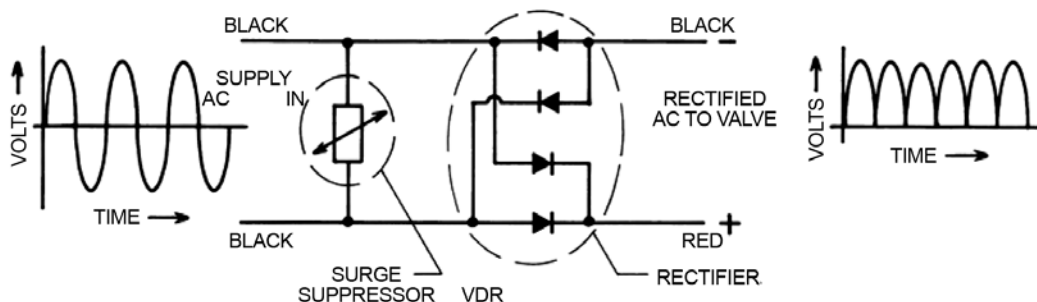
## AC ELECTRONIC CONNECTOR

Electronic connector AC lead wires are supplied complete with electronic connector, circuit module and lead wires. The AC ends should be attached to the terminal strip of the electronic controller and the electronic connector plugged into a DYNAMCO DASH 1 solenoid operator.



AC ELECTRONIC CONNECTOR 16 IN (40 cm) P/N 2587-7  
80 IN (200 cm) P/N 2597-7

## ALTERNATING CURRENT CIRCUIT MODULE DIAGRAM



# Dash 1 Valves



## NORMALLY CLOSED (NORMALLY NOT PASSING)

The DASH 1 valve is most often applied as a normally closed (NC), or normally not passing valve. In this configuration, a pneumatic supply should be connected to port P and the output port A should be connected to the device to be pressurized. The exhaust port R is the port at the end of the solenoid. The valve symbol is shown below.

## NORMALLY OPEN (NORMALLY PASSING)

The DASH 1 valve can be used as a normally open (NO) or normally passing valve by connecting the supply air to port R in the end of the solenoid and using port A for the output. The valve symbol is shown below.

## VACUUM APPLICATIONS

Certain DASH 1 valves are suitable for use in vacuum applications as shown on page 8. We can also build custom valves for vacuum applications. Please contact our sales department and we will be glad to design and build a valve that meets specific requirements.

## PRESSURE RANGE

DASH 1 valves can be operated over the pressure ranges shown on page 8. Note, in order to achieve the highest operating performance, care should be taken to choose the optimum model for the application.

## TEMPERATURE RANGE

For DASH 1 Models Below 1 Watt:  
0° to 150°F (-18° to 65°C)

For DASH 1 Models Above 1 Watt:  
0° to 122°F (-18° to 50°C)

## SERVICE, FILTRATION, AND LUBRICATION

DASH 1 valves are designed for service on air and inert gasses. DYNAMCO recommends 40 micron filtration. The DASH 1 valve is a direct acting poppet and is very forgiving of contamination. Lubrication is not required.

## MOUNTING

Dash 1 valves can be mounted in any orientation and still achieve excellent performance.

## ALTERNATIVE VOLTAGES AND POWER LEVELS

DYNAMCO can supply nearly any DC voltage and lower power levels at reduced operating pressures. If your requirements cannot be met by DYNAMCO's standard DASH 1 valves, contact DYNAMCO or any of our authorized distributors throughout the world.

## MATERIALS

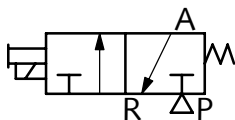
Solenoid Housing .... Electroless Nickel or Zinc Plated S.S.  
Pole Piece ..... Electroless Nickel or Zinc Plated S.S.  
Armature ..... Proprietary  
Seals ..... Buna N  
Valve Body ..... Anodized Aluminum

**NOTE:** Other materials available upon request.

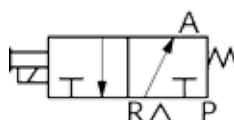
ELECTRICAL SPECIFICATIONS			
Voltage (Volts)	Power (Watts)	Resistance (OHMS)	Current (Amps)
5*	0.6	45	.111
5*	1.2	23	.210
5*	2.5	10	.500
12*	0.6	260	.050
12*	1.2	120	.100
12*	2.5	60	.185
24*	0.6	1100	.027
24*	1.2	500	.052
24*	2.5	235	.100
115*	2.5	5500	.021

\*The voltage can be AC ( 50/60 Hz ) or DC. For AC operation use AC lead wires (described on page 6) and the proper voltage DC DASH 1 valve. Voltage tolerance is +15% -10% of rated. Solenoids are rated for continuous duty.

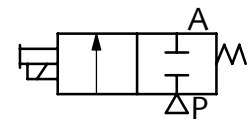
## DASH 1 VALVE SYMBOLS



**3 WAY (3/2) NC**  
(normally not passing)



**3 WAY (3/2) NO**  
(normally passing)



**2 WAY (2/2) NC**  
(normally not passing)



# Dash 1 Valves

## DASH 1 MODEL NUMBERING SYSTEM

EXAMPLE: **D11 3 3 01**

### VALVE TYPE

(see valve characteristics below)  
 ...D11 ...D15 ...D1C ...D1J  
 ...D12 ...D16 ...D1F ...D1K  
 ...D13 ...D1A ...D17 ...D1L  
 ...D14 ...D1B ...D18 ...D1M  
 ...D1P

### VOLTAGE

5 VDC.....1  
 12 VDC.....2  
 24 VDC.....3  
 115 VDC.....5  
 5 VDC w/Diode...A  
 12 VDC w/Diode...B  
 24 VDC w/Diode...C  
 See notes 2 and 3

### CONNECTOR

ELECTRONIC.....2  
 DIN.....3  
 PCB.....4  
 16" FLYING LEADS.....5  
 80" FLYING LEADS.....6

### VALVE PORTS AND MOUNTING

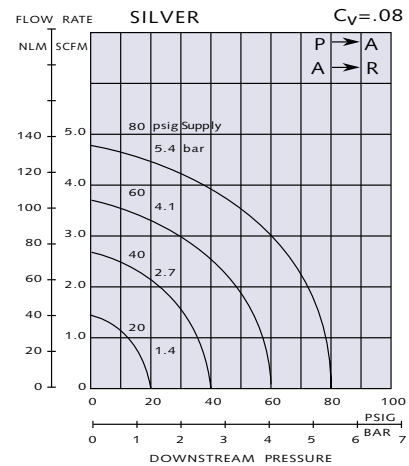
SOLENOID OPERATOR ONLY...00  
 MANIFOLD MOUNTING.....01  
 PORTS IN BODY.....02  
 ADAPTER BASE.....03  
 1/8 NPT MALE OUTPUT.....04  
 1/8 BSPP MALE OUTPUT.....05  
 PCB.....06

- NOTES:**
1. Removable connectors and lead wires must be ordered separately. See page 6.
  2. All voltages can be used on either AC or DC electrical service by ordering the proper AC or DC lead wires. See page 6.
  3. 115V only available in 2.5 watt models.
  4. .089 silver series not available in 03 adapter base mounting.

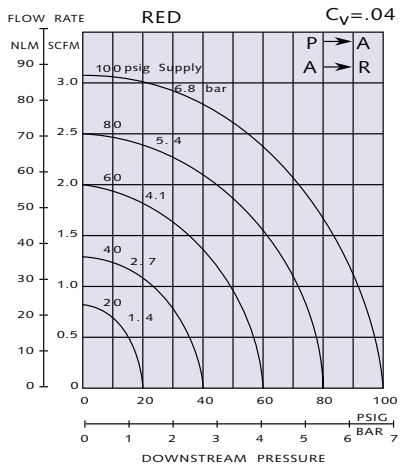
## DASH 1 VALVE CHARACTERISTICS

Valve Type	Valve Function	Orifice IN (MM)	Power (Watts)	REM	PRESSURE (PSIG)																		
					NORMALLY OPEN					VAC	NORMALLY CLOSED												
					7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11
D11	3 WAY (3/2)	.031 (0.8)	0.6	BLACK	100	50	0	50	100	150	200												
D12	3 WAY (3/2)	.062 (1.6)	2.5	RED																			
D13	3 WAY (3/2)	.062 (1.6)	1.2	RED																			
D14	3 WAY (3/2)	.031 (0.8)	0.6	BLACK																			
D15	3 WAY (3/2)	.062 (1.6)	2.5	RED																			
D16	3 WAY (3/2)	.031 (0.8)	2.5	BLACK																			
D1A	2 WAY (2/2)	.031 (0.8)	0.6	BLACK																			
D1B	2 WAY (2/2)	.062 (1.6)	2.5	RED																			
D1C	2 WAY (2/2)	.062 (1.6)	1.2	RED																			
D1F	2 WAY (2/2)	.031 (0.8)	2.5	BLACK																			
D17	3 WAY (3/2)	.031 (0.8)	0.3	BLACK																			
D18	3 WAY (3/2)	.062 (1.6)	0.6	RED																			
D19	3 WAY (3/2)	.089 (2.3)	1.2	SILVER																			
D1N	3 WAY (3/2)	.089 (2.3)	1.2	SILVER																			
D1G	3 WAY (3/2)	.031 (0.8)	0.3	BLACK																			
D1H	3 WAY (3/2)	.031 (0.8)	0.3	BLACK																			
D1J	3 WAY (3/2)	.062 (1.6)	1.2	RED																			
D1K	3 WAY (3/2)	.062 (1.6)	2.5	RED																			
D1L	3 WAY (3/2)	.089 (2.3)	2.5	SILVER																			
D1M	3 WAY (3/2)	.089 (2.3)	2.5	SILVER																			

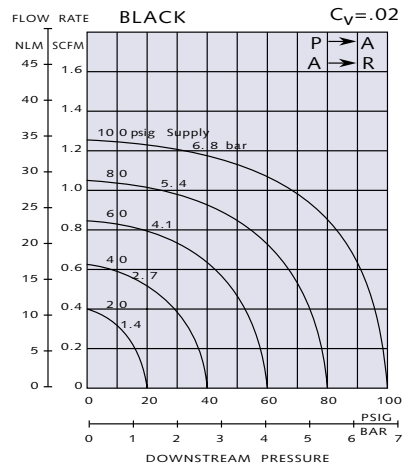
### 0.089 in (2.3) Orifice



### 0.062 in (1.6) Orifice



### 0.031 in (0.8) Orifice



# Dash 1 Valves



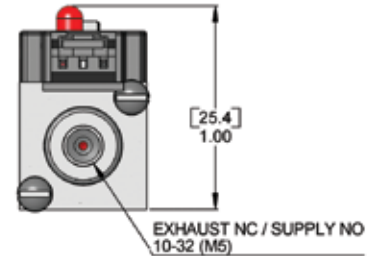
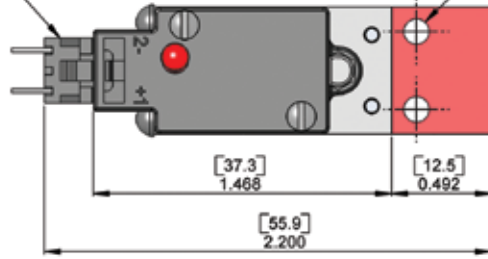
## DASH 1 VALVE BODY PORTS IN BODY

Part Number	Orifice Size
2523-2 Black	.031 (0.8)
2524-2 Red	.063 (1.6)
3079-2 Silver	.089 (2.3)

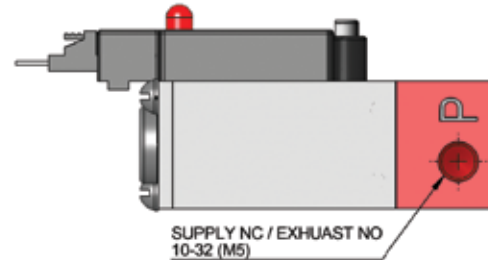
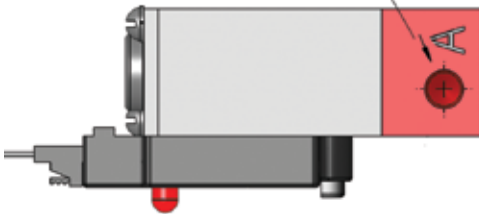
NOTE: Part number is for body O-ring and Pins.

REMOVABLE ELECTRONIC CONNECTOR PART NUMBER 2458-0, MUST BE ORDERED SEPARATELY.

MOUNTING HOLES 0.125 (3.2mm) DIA THRU 2 PLACES



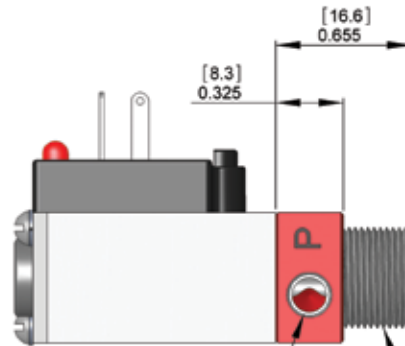
OUTPUT PORT 10-32 (M5)  
BODY SHOWN IN STANDARD POSITION BUT CAN BE ROTATED TO ORIENT PORTS AS DESIRED.



## DASH 1 VALVE BODY 1/8 PIPE STUD

Part Number	Orifice Size	Pipe Thread
2523-4 Black	.031 (0.8)	1/8 NPT
2524-4 Red	.063 (1.6)	1/8 NPT
3079-4 Silver	.089 (2.3)	1/8 NPT
2523-5 Black	.031 (0.8)	1/8 BSPP
2524-5 Red	.063 (1.3)	1/8 BSPP
3079-5 Silver	.089 (2.3)	1/8 BSPP

NOTE: Part number is for body O-ring and Pins..



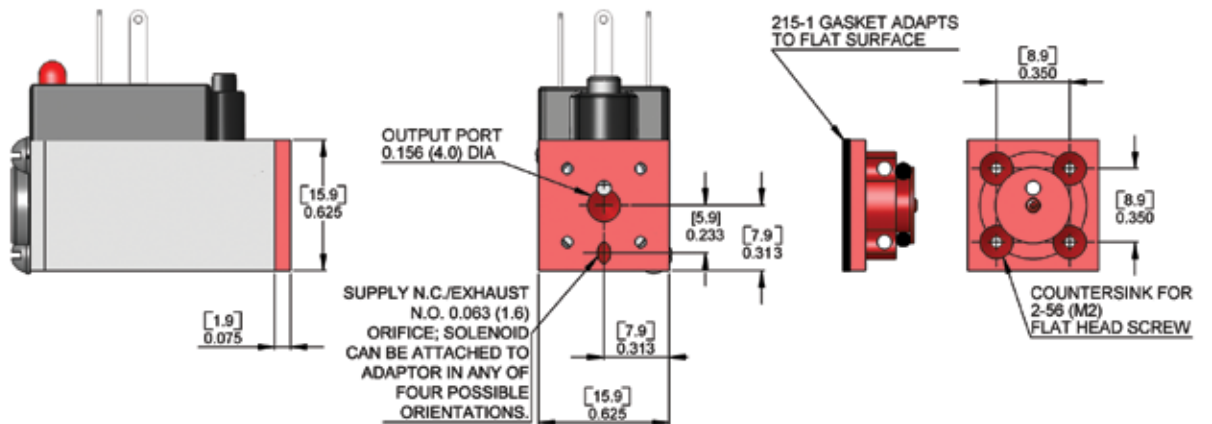
SUPPLY NC / EXHAUST NO 10-32 (M5)  
BODY SHOWN IN STANDARD POSITION BUT CAN BE ROTATED TO ORIENT PORTS AS DESIRED.

OUTPUT PORT 1/8" NPT OR 1/8" BSPT (SEE CHART)

## DASH 1 VALVE ADAPTER PLATE

Part Number	Orifice Size
2523-3 Black	.031 (0.8)
2524-3 Red	.063 (1.6)

NOTE: Part number is for adapter O-ring, Screws, Gasket and Pins.



## MANIFOLDS

There are four styles of manifolds cataloged in the DASH 1 family. Drawings, model numbers, and dimensions are shown on pages 11 thru 13.

### 10-32 (M5) SUPPLY MANIFOLD

This manifold is designed for smaller applications up to 6 valves. The supply can be fed from both ends to provide adequate air flow. There is also an auxiliary gallery that can be used to capture the exhaust of the valves by making a tubing connection to the auxiliary gallery. Part numbers and dimensions are shown on page 11.



**4 STATION 10-32 [M5] SUPPLY MANIFOLD**  
Shown with 4 Each D123201 Valves

### 1/8 NPT OR 1/8 BSPP SUPPLY SINGLE SIDED

This manifold also allows supply from both ends. Part numbers and dimensions are shown on page 12.



**4 STATION 1/8 PIPE SUPPLY SINGLE SIDED MANIFOLD**  
Shown with 4 Each D123301 Valves

### 1/8 NPT OR 1/8 BSPP SUPPLY DOUBLE SIDED

This manifold is similar to the single sided manifold, but allows valves to be mounted on both sides of the manifold. Part numbers and dimensions are shown on page 13.

### DASH 1 IN-LINE SINGLE MANIFOLD

Dynamco also offers a single, in-line manifold for the DASH 1 product line. This manifold allows users to easily incorporate Dynamco 2-way and 3-way valves into circuits with 1/8" NPT or BSPP connections. In addition to the high speed performance and long life that the DASH 1 delivers, this package also enables easier field maintenance for the end user. Because the Dynamco assembly is a manifold style, the valve can be replaced without having to remove the manifold assembly from the pipe work, simplifying routine maintenance.

The manifold can be used with any DASH 1 Valve configured with manifold mounting. The DASH 1 Valve is mounted in the same manner as with other Dynamco manifolds. The manifold part numbers are as follows:

Part Number	Connection
3081-0	1/8" NPT
3082-0	1/8" BSPP

The 1/8" connections apply to the "P" Port and "A" Port only. For 3-way versions of the DASH 1 valve, the "R" Port will continue to be accessed on the valve, using the 10-32 (M5) connection. However in most applications, the "R" Port is used only for exhaust and will not require piping.



**8 STATION 1/8 PIPE SUPPLY DOUBLE SIDED MANIFOLD**  
Shown with 8 Each D123301 Valves



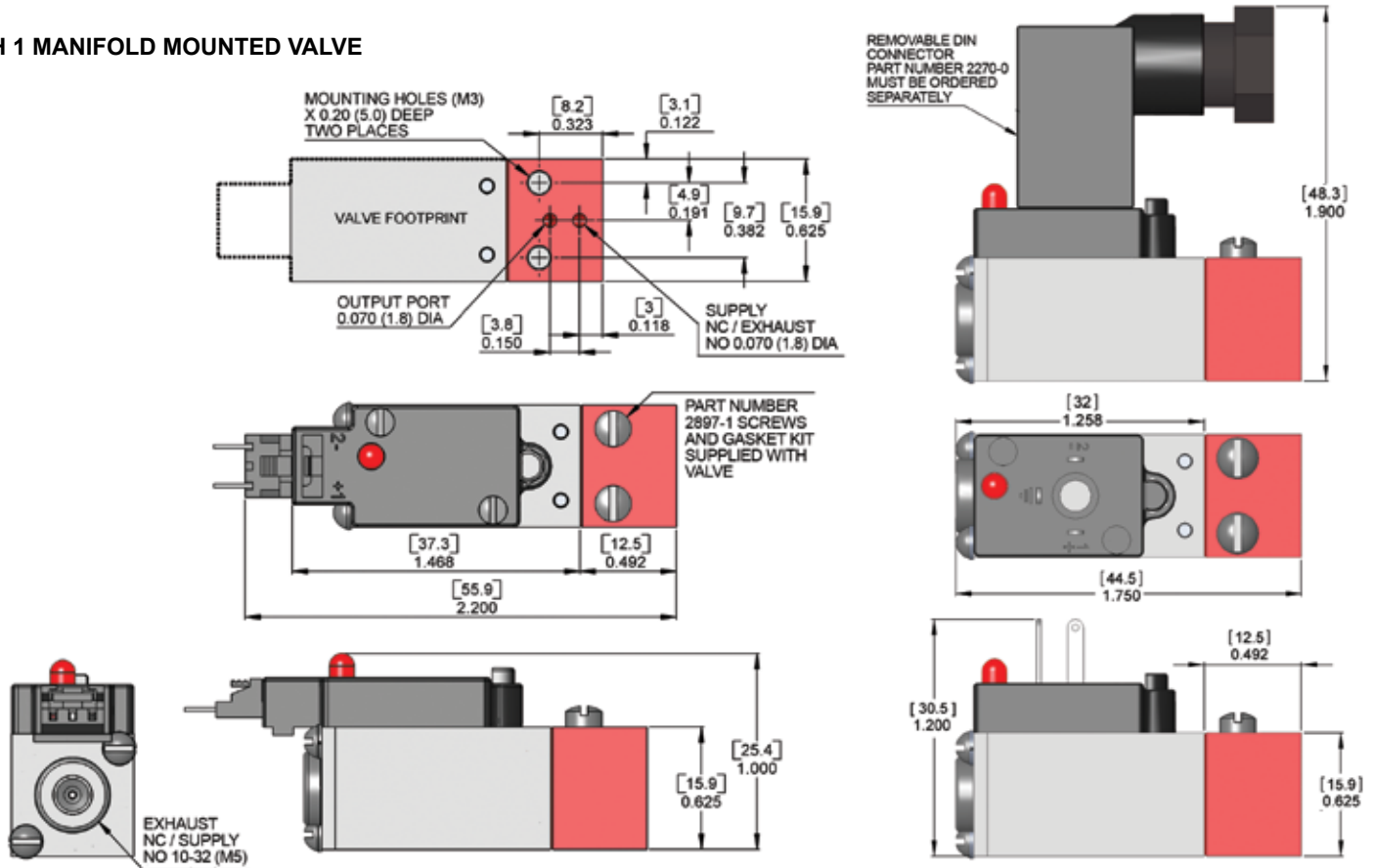
**IN-LINE SINGLE MANIFOLD**  
Shown with D123301



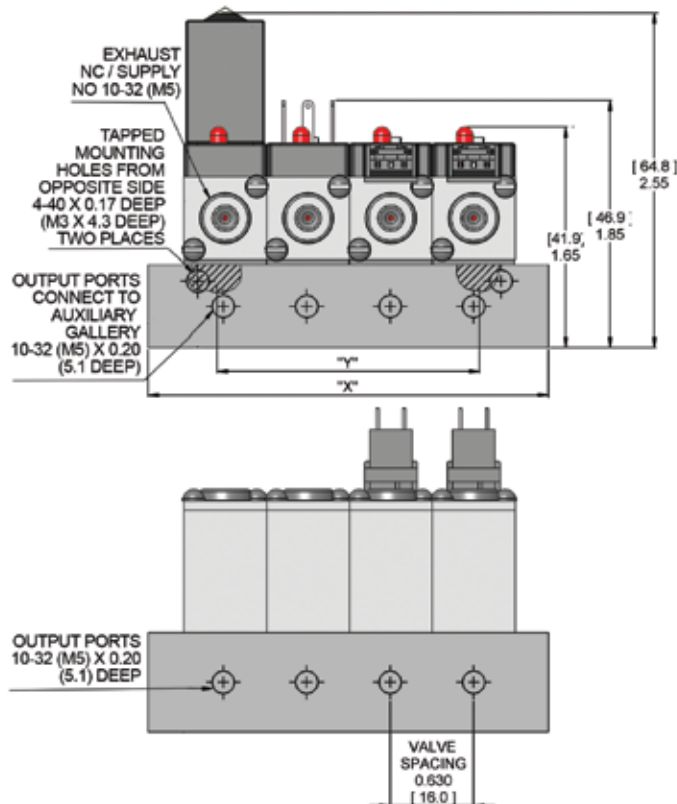
# Dash 1 Manifolds



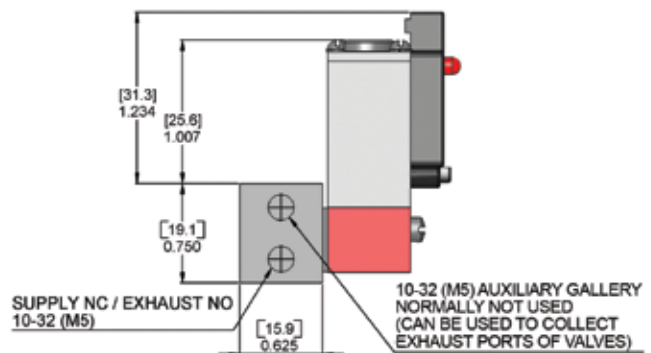
## DASH 1 MANIFOLD MOUNTED VALVE



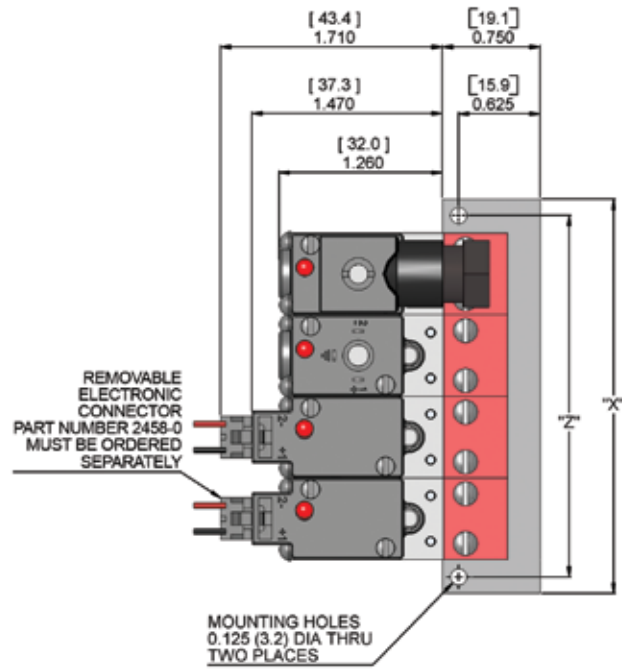
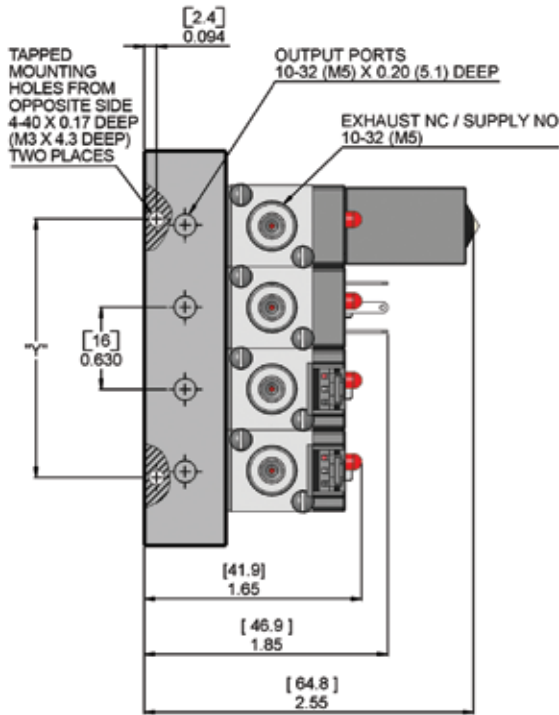
## 10-32 (M5) SINGLE SIDED MANIFOLD



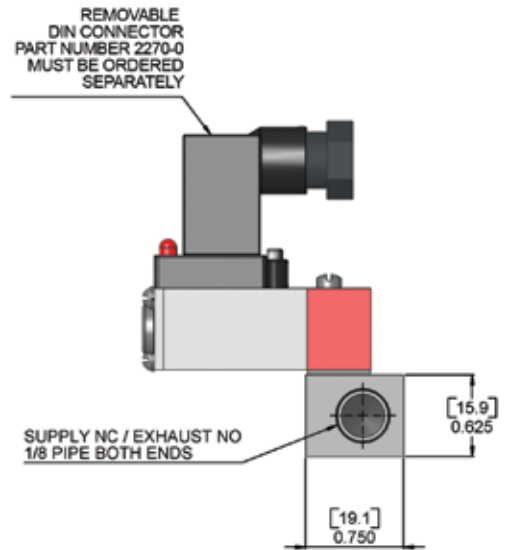
DASH 1 MANIFOLD [M5] 10-32 SINGLE SIDED			
Part Number	Number of Stations	"X"	"Y"
2529-2	2	1.260 (32.0)	1.008 (25.6)
2529-3	3	1.890 (48.0)	1.638 (41.6)
2529-4	4	2.520 (64.0)	2.268 (57.6)
2529-5	5	3.150 (80.0)	2.898 (73.6)
2529-6	6	3.780 (96.0)	3.528 (89.6)



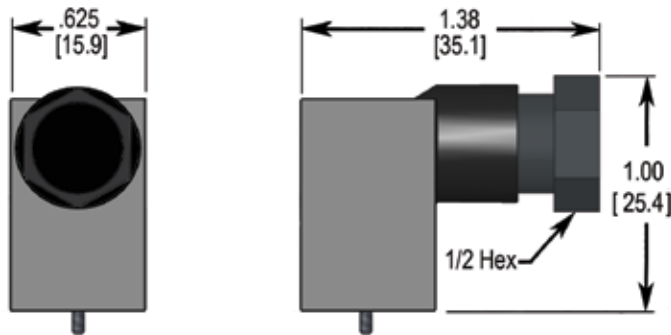
## 1/8 PIPE SINGLE SIDED MANIFOLD



DASH 1 MANIFOLD 1/8 PIPE SUPPLY SINGLE SIDED					
NPT P/N	BSPP P/N	Number of Stations	"X"	"Y"	"Z"
2511-2	2553-2	2	1.760 (44.7)	.630 (16.0)	1.510 (38.4)
2511-4	2553-4	4	3.020 (76.7)	1.890 (48.0)	2.770 (70.4)
2511-6	2553-6	6	4.280 (108.7)	3.150 (80.0)	4.030 (102.4)
2511-8	2553-8	8	5.540 (140.7)	4.410 (112.0)	5.290 (134.4)
2512-0	2554-0	10	6.800 (172.7)	5.670 (144.0)	6.550 (166.4)



DIMENSIONS SHOWN IN INCHES [METRIC]



POS DIN CONNECTOR P/N 2270-0

### 2550-0 BLANK STATION COVER

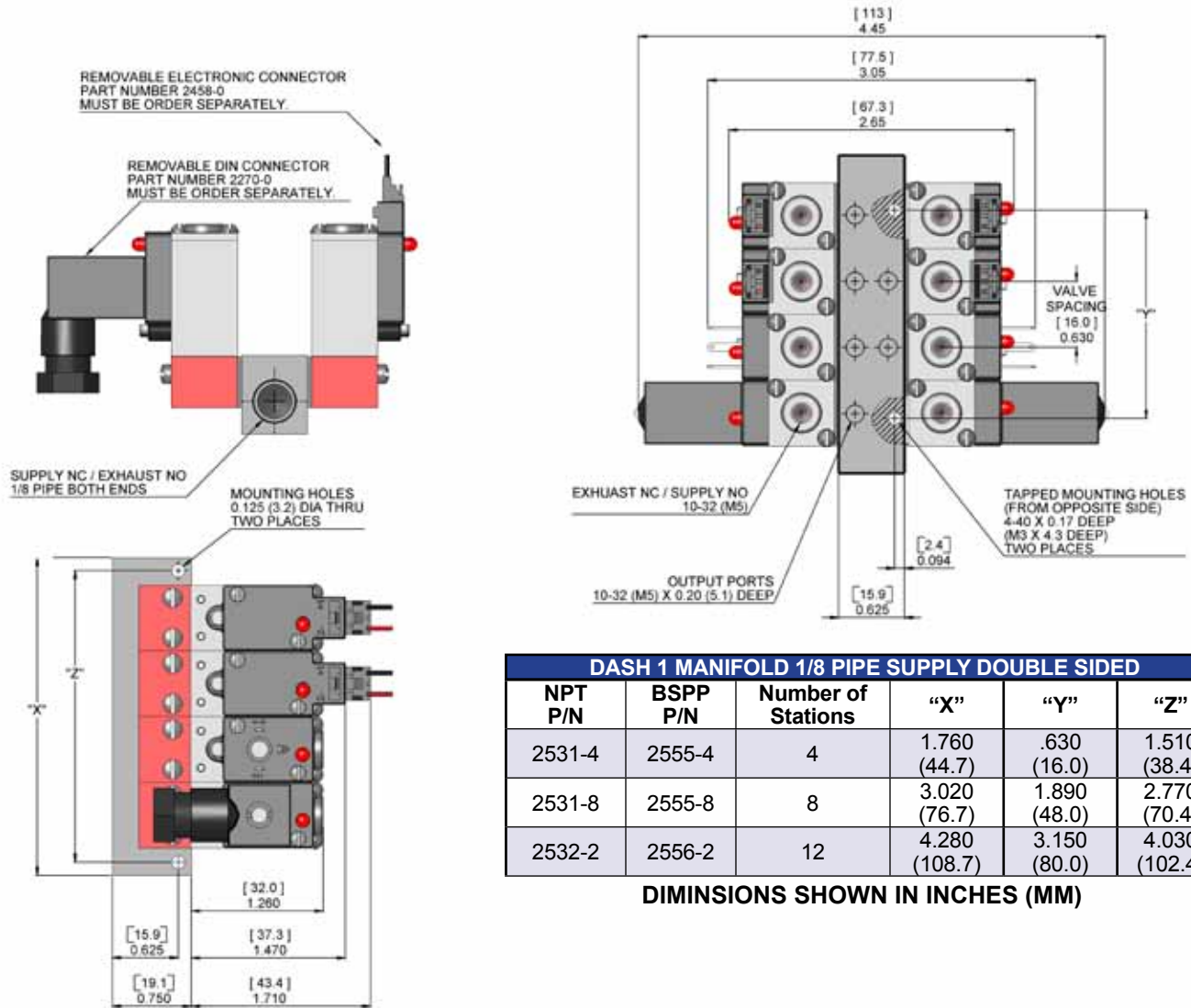
Order part number 2550-0 for the complete blank station cover assembly. The assembly consists of:

- 2550-1 Blank Station Cover
- 2677-1 M3 Machine Screws ( 2 pieces )
- 2486-0 Gasket

# Dash 1 Manifolds



## 1/8 PIPE DOUBLE SIDED MANIFOLD



DASH 1 MANIFOLD 1/8 PIPE SUPPLY DOUBLE SIDED					
NPT P/N	BSPP P/N	Number of Stations	"X"	"Y"	"Z"
2531-4	2555-4	4	1.760 (44.7)	.630 (16.0)	1.510 (38.4)
2531-8	2555-8	8	3.020 (76.7)	1.890 (48.0)	2.770 (70.4)
2532-2	2556-2	12	4.280 (108.7)	3.150 (80.0)	4.030 (102.4)

DIMENSIONS SHOWN IN INCHES (MM)

## SINGLE IN-LINE MANIFOLD

