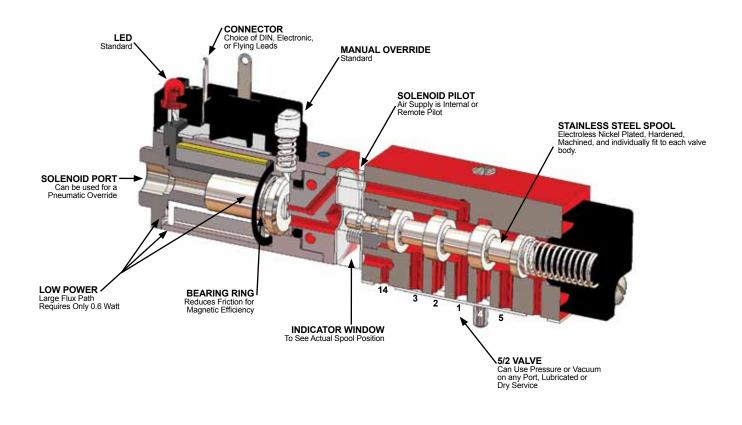


DASH 3 PILOT OPERATED SOLENOID VALVE QUALITY DESIGN FEATURES





D3532KLO DASH 3 SINGLE POS SOLENOID ELECTRONIC 2594-0 1/8 NPT Side Ported Base

2458-0 Removable Electronic Connector



VALVE BODY AND SPOOL DESIGN

There are no moving seals in the DASH 3 valve! The DASH 3 is a metal to metal lapped spool valve. Traditional metal to metal valves can be unforgiving and require extremely fine filtration. Dynamco's design of using dissimilar metals of different hardnesses eliminates the need. DYNAMCO controls the clearances between the body and spool by individually match fitting each spool and body to achieve a proper floating air bearing. The clearance has a narrow range that every valve must achieve. The thermal expansion coefficients of the body and spool are the same so the clearance stays the same over a wide range of conditions.

MINIATURE SIZE AND HIGH FLOW

DASH 3 valves are .75 inches (19mm) wide and yet have a C $_{\!_{\rm V}}$ of .40 that will flow over 31 SCFM (900 Liters/Min.). See Flow Curves on page 33.

SPEED

DASH 3 valves are extremely fast. The pilot operated solenoid DASH 3 can shift in 4 to 7 milliseconds. The higher the pressure the faster the shift time.

REPEATABILITY

In DYNAMCO's DASH 3 valves virtually all friction has been eliminated. The only force on the spool is the spring and the air pressure from the solenoid pilot. Valves with moving seals not only have friction, but friction changes with lubrication, moisture, temperature, etc. DYNAMCO valves respond the same regardless of ambient conditions.

LOW ELECTRICAL POWER REQUIREMENTS

0.6 watt power consumption of the pilot operated solenoid allows DASH 3 valves to be controlled by almost any electronic control.

LIFE

The design life of DYNAMCO's DASH 3 POS valves is well in excess of 100 million cycles. This performance has been thoroughly proven in laboratory tests and field performance.



 D3533KLO DASH 3 POS DIN

 2803-0
 1/8 BSPP Base

 2270-0
 DIN Connector

LED INDICATOR

DASH 3 valves have a red LED as a standard feature. **Note:** Take care to connect the positive wire (red) to the #1 (positive) terminal and the negative wire (black) to the #2 (negative) 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 too dim, check the voltage level supplied to the solenoid. It is probably below the minimum rated level.

SPOOL INDICATOR WINDOW

The spool indicator window shows the physical position of the spool. Having both the LED indicator and indicator window is invaluable in setting up and troubleshooting machines.

SOLENOID PILOT AIR

The DASH 3 valve can be ordered with a main supply connection or a remote pilot connection. Also, the configuration can be switched in the field without any additional parts.

PNEUMATIC OVERRIDE

The solenoid operator port can be used for a pneumatic override. A 3 way (3/2) signal will shift the valve spool against the return spring (or detent in a double solenoid).

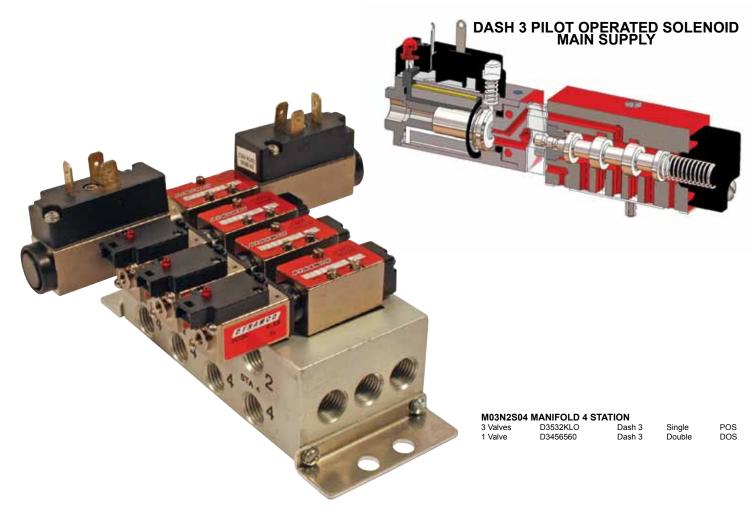
QUALITY

Quality must be present in both design and manufacturing. Our strict standards ensure the DASH 3 valve is the highest quality design available. *We are an ISO 9001: 2008 certified company.*

DYNAMCO manufactures practically all components for DASH 3 in its own manufacturing facility. Every DASH 3 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.

DYNAMCO

Dash 3 Valves



ELECTRICAL SPECIFICATIONS			
Voltage (Volts)	Power (Watts)	Resistance (OHMS)	Current (Amps)
5*	0.6	45	.111
12*	0.6	260	.050
24*	0.6	1100	.027
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 3 POS valve. Voltage tolerance is +15% -10% of rated. Solenoids are rated for continuous duty.

TEMPERATURE RANGE

- For DASH 3 POS Models below 1 watt: 0° to 150°F (-18° to 65°C)
- For DASH 3 POS Models above 1 watt: 0° to 122°F (-18° to 50°C)

MOUNTING

Generally DASH 3 POS valves may be mounted in any orientation. DYNAMCO recommends mounting DASH 3 valve spools horizontally if vibration is present.

MATERIALS

Valve Body	.Electroless Nickel Plated S.S.
Valve Spool	Hardened Stainless Steel
Springs	Stainless Steel
Seals	Buna N and Polyurethane
Indicator Window	Acrylic
Spring Housing	Delrin
Solenoid Adapter Plate	Anodized Aluminum
Solenoid Housing/Pole Piec	e Plated Stainless Steel
Armature	Proprietary
Coil Form	Ryton™ R4

PRESSURE RANGE

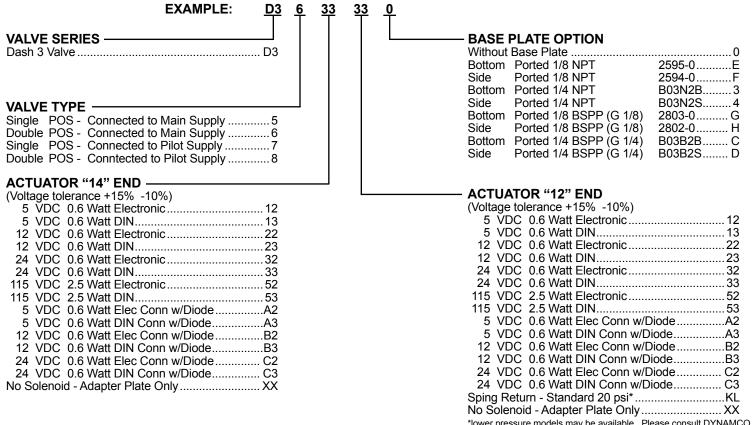
Spool Valvevacuum to 100 psi (6.9 Bar) Min. Std. Solenoid Pilot Press20 psi (1.4 Bar) For lower pilot pressure models, please contact DYNAMCO.

SERVICE, FILTRATION AND LUBRICATION

DASH 3 valves are designed for service on air and inert gasses. DYNAMCO recommends 5 micron filtration. Lubrication is not required.



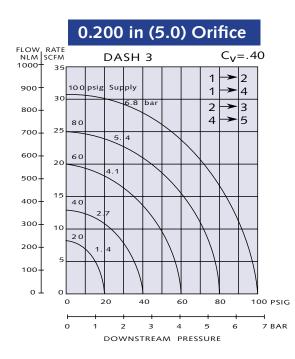
DASH 3 POS MODEL NUMBERING SYSTEM



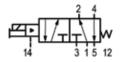
*lower pressure models may be available. Please consult DYNAMCO for more information.

NOTES: 1. Removable connectors and lead wires must be ordered separately. See page 6.

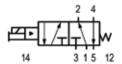
2. All voltages can be used on either AC or DC electrical service by ordering the proper AC or DC lead wires. See page 6.



DASH 3 POS VALVE SYMBOLS



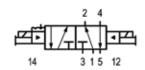
SINGLE SOLENOID Remote Pilot Supply



SINGLE SOLENOID Main Supply



DOUBLE SOLENOID Remote Pilot Supply

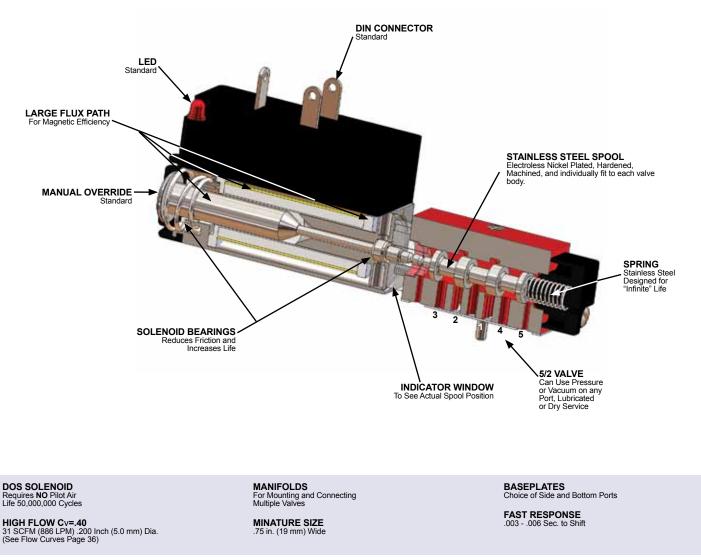


DOUBLE SOLENOID Main Supply

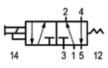


DASH 3 DIRECT OPERATED SOLENOID VALVE QUALITY DESIGN FEATURES

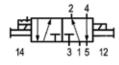
NO PILOT AIR REQUIRED!



Please note DYNAMCO DASH-3 Direct Operated Solenoid (DOS) Valves are not UL listed.



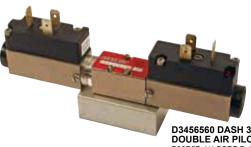
SINGLE SOLENOID Spring Return



DOUBLE SOLENOID Detented







DOUBLE AIR PILOTED B03B2B 1/4 BSPP Bottom Ported Base

DASH 3 DOS MODEL NUMBERING SYSTEM

EXAMPLE: D3 3 VALVE SERIES	<u>56 GL</u>	BASE PLATE OPTION Without Base Plate 0 Bottom Ported 1/8 NPT 2595-0 Side Ported 1/8 NPT 2594-0 Bottom Ported 1/4 NPT B03N2B Side Ported 1/4 NPT B03N2S Bottom Ported 1/8 BSPP (G 1/8)2803-0 G Side Ported 1/8 BSPP (G 1/8)2802-0 H Bottom Ported 1/4 BSPP (G 1/4)B03B2B C Side Ported 1/4 BSPP (G 1/4)B03B2S D
ACTUATOR "14" END (Voltage tolerance + 15% - 10%) 6 Volt DC Solenoid DIN Connector] [ACTUATOR "12" END (Voltage tolerance + 15% - 10%) 6 Volt DC Solenoid DIN Connector

NOTES: 1. Removable connectors 2285-0 and 2285-5 must be ordered separately. See page 43.

- 2. Fast-on type connectors are suitable for use with DIN connector terminals.
- 3. For 24 volt AC/DC and 48 volt AC/DC order valves without solenoids and order replacement solenoid operators listed below.
- 4. Please note DYNAMCO DASH-3 Direct Operated Solenoid (DOS) Valves are not UL listed.

ELECTRICAL SPECIFICATIONS			
Voltage (Volts)	Power (Watts)	Resistance (OHMS)	Current (Amps)
6 DC	7	5	1.20
12 DC	7	20	.60
24 DC	7	83	.29
24 AC/DC	7	83	.29
48 AC/DC	7	265	.18
115 AC/DC*	7	1900	.06
230 AC/DC*	7	8400	.03

*The voltage can be AC (50/60 Hz) or DC. Voltage tolerance is +15% -10% of rated.

TEMPERATURE RANGE

0° to 122°F (-18° to 50°C)

MOUNTING

DASH 3 DOS valves **MUST BE** mounted with valve spools horizontal.

MATERIALS

Valve Body	Electroless Nickel Plated S.S.
Valve Spool	Hardened Stainless Steel
Springs	Stainless Steel
Seals	Buna N and Polyurethane
Indicator Window	Acrylic
Spring Housing	Delrin
Solenoid Adapter	Zinc Plated Steel
Solenoid Housing	Nickel Plated Steel
Armature	Proprietary
Solenoid Connector Coil Fo	ormRyton [™] R4

PRESSURE RANGE

Spool Valve0 to 100 psi (6.9 Bar) Since the DASH 3 DOS is a Direct Solenoid, **NO Solenoid Pilot Pressure is Required!**

SERVICE, FILTRATION AND LUBRICATION

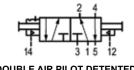
DASH 3 valves are designed for service on air and inert gasses. DYNAMCO recommends 5 micron filtration. Lubrication is not required.



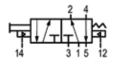
D30D0A00 DASH 3 DOUBLE AIR PILOTED 2802-0 1/8 BSPP Side Ported Base



D30S0K00 DASH 3 AIR PILOTED SPRING RETURN 1/8 NPT Bottom Ported Base 2595-0



DOUBLE AIR PILOT DETENTED



AIR PILOT SPRING RETURN

DASH 3 AIR PILOT MODEL NUMBERING SYSTEM

	EXAMPLE:	D30SMK0	P
VALVE SERIES Dash 3 Air Pilot Operated Spring Return Dash 3 Air Pilot Operated Spring Return with Manual Override	D30S0	0K0	
Dash 3 Double Air Pilot Detented Dash 3 Double Air Pilot Detented with Manual Overrides			

BASE PLATE OPTION

Without Base Plate		0
Bottom Ported 1/8 NPT	2595-0	E
Side Ported 1/8 NPT	2594-0	F
Bottom Ported 1/4 NPT	B03N2B	
Side Ported 1/4 NPT	B03N2S	4
Bottom Ported 1/8 BSPP (G 1/8)	2803-0	G
Side Ported 1/8 BSPP (G 1/8)	2802-0	H
Bottom Ported 1/4 BSPP (G 1/4)	B03B2B	C
Side Ported 1/4 BSPP (G 1/4)	B03B2S	D

MATERIALS

Valve Body	Electroless Nickel Plated S.S.
Valve Spool	Hardened Stainless Steel
Springs	Stainless Steel
Seals	Buna N and Polyurethane
Indicator Window	Acrylic
Spring Housing	Delrin

PRESSURE RANGE

Spool Valvevacuum to 100 psi (6.9 Bar) Minimum Standard Pilot Press20 psi (1.4 Bar) For lower pressure pilot models, please contact DYNAMCO.

SERVICE, FILTRATION AND LUBRICATION

DASH 3 valves are designed for service on air and inert gasses. DYNAMCO recommends 5 micron filtration. Lubrication is not required.

TEMPERATURE RANGE

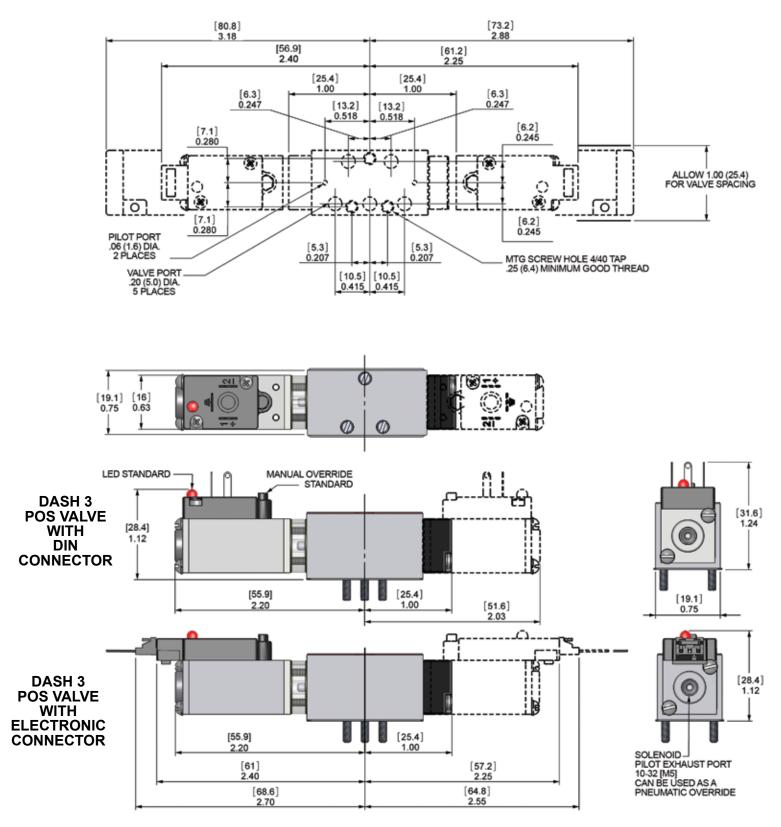
0° to 200°F (-18° to 93°C)

MOUNTING

Generally DASH 3 air piloted valves may be mounted in any orientation. DYNAMCO recommends mounting valve spools horizontally if vibration is present.



DASH 3 VALVE FOOTPRINT

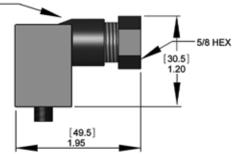


Dimensions shown in inches [mm]

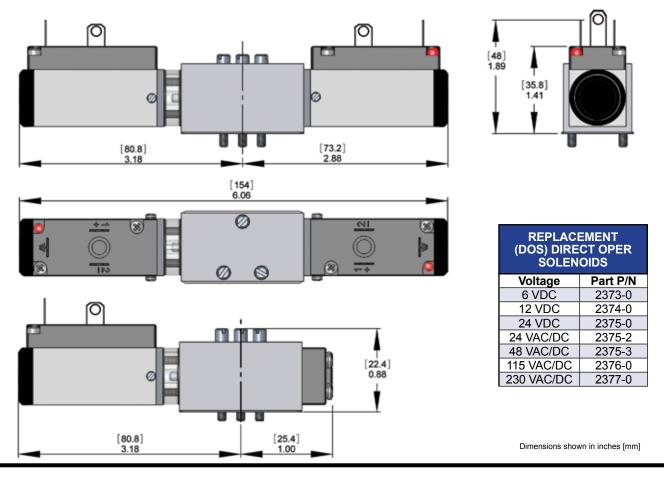


DASH 3 DOS DIN CONNECTORS

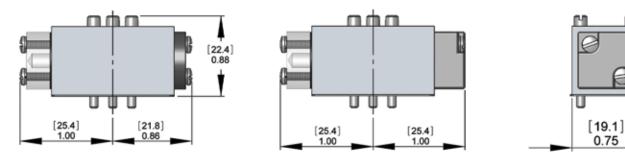
CORD TYPE DIN CONNECTOR P/N 2285-0 MUST BE ORDERED SEPERATELY

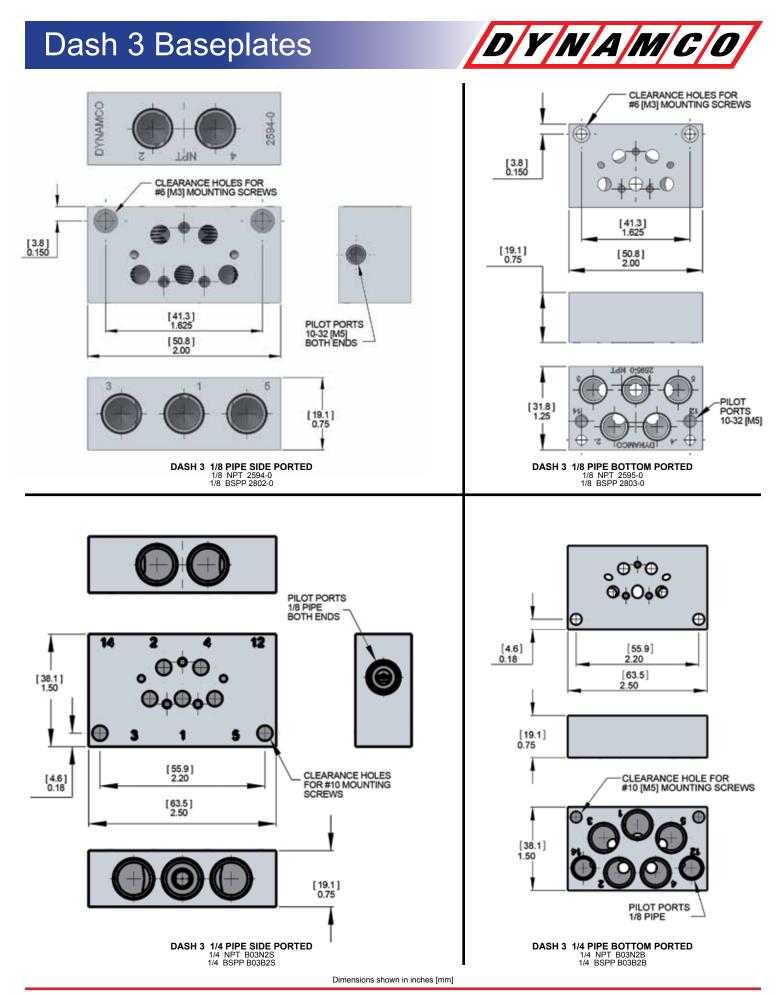


DASH 3 DIRECT OPERATED SOLENOID VALVES



DASH 3 AIR PILOT OPERATED VALVES



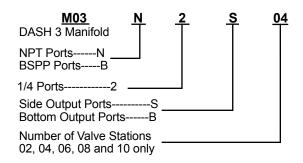


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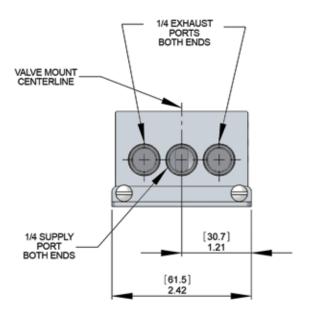


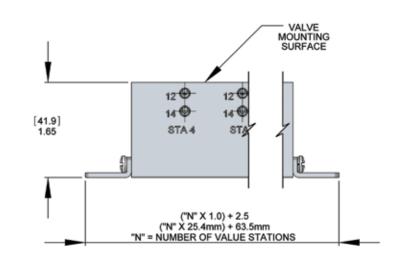
Dash 3 Manifolds

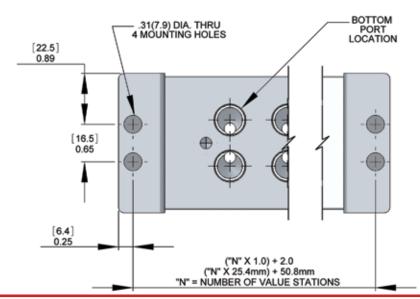




DASH 3 VALVE MANIFOLDS







Stackable Manifolds

This manifold system, comprised of headers, sections, etc. is a flexible and versatile set of building blocks. Sections are joined with threaded rods and are sealed with O-rings. Features include:

- · Modular construction using expandable building blocks
- Can configure for special requirements
- · Can modify for design changes
- · Can easily be changed in the field
- · Extremely high flow
- · O-ring plate sealing
- NPT or BSPP pipe threads
- · Internal gallery block option
- · External pressure supply option
- Multiple supply pressures (or vacuum)
- · Use combination of DASH valves
- · Common or separate exhausts
- Exhausts can be used for speed Control
- · Very compact and cost effective

EXAMPLE MANIFOLD STACK STACKABLE 10-32 (M5) BOTTOM PORTED MANIFOLD*

The manifold stack pictured below has one supply gallery and two identical exhaust galleries. Study the type of and number of valves mounted as well as the supply and exhaust galleries. Page 42 shows the parts available in the family.



BLANK SECTIONS

"Blank" sections allow you to connect portions of the supply/ exhaust galleries by drilling spot drilled holes to fit your exact requirements.

MOUNTING AND THREADED RODS

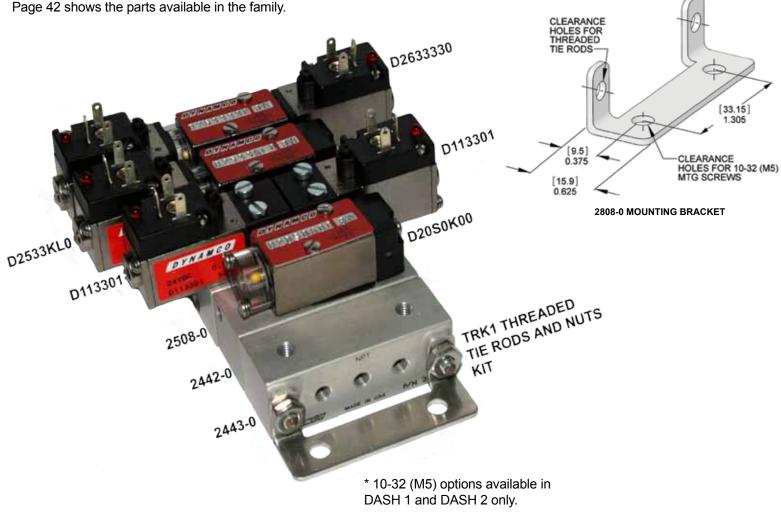
Methods of mounting the manifold stack include:

- 1. Order quantity required P/N 2808-0 Mtg Bracket
- 2. P/N 2443-0 provides 10-32 (M5) mounting holes on 1.305 (33.1) centers.
- 3. It may be possible to use available ports (such as pilot ports on a solenoid stack) to mount the stack.

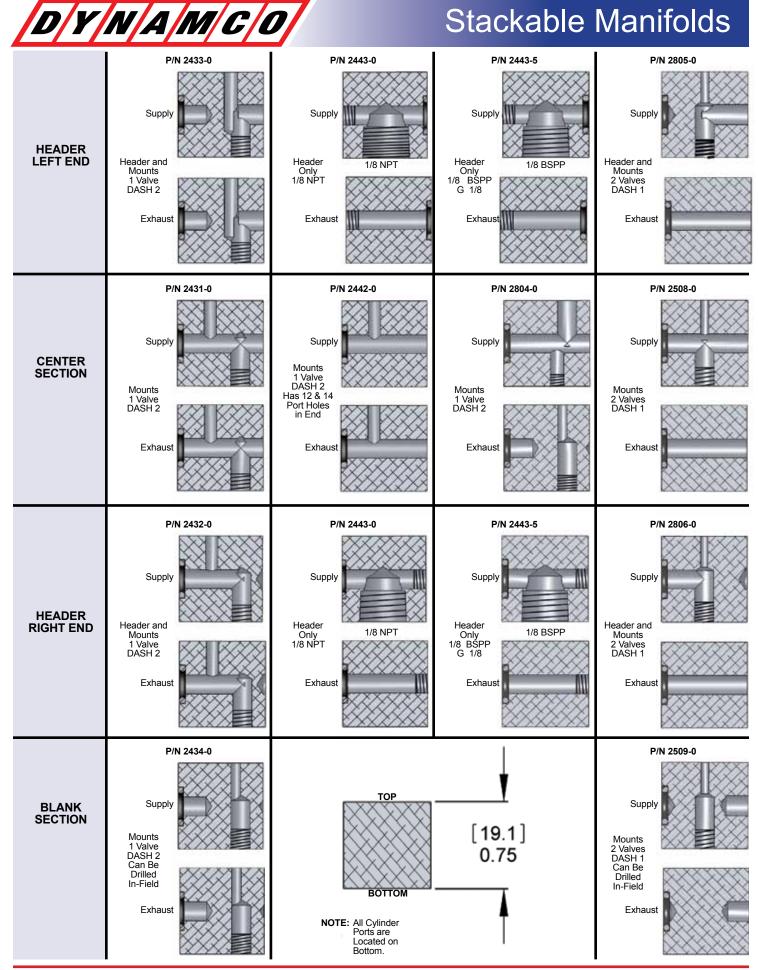
TRK1 Threaded Rod Kits include 2 pieces 12 inch (30 cm) 8-32 threaded rod and 4 pieces 8-32 nuts.

NOTES:

- Part numbers include the necessary O-Rings.
- All ports are 10-32 (M5) unless specified.
- All Cylinder Ports are on the bottom.



Stackable Manifolds



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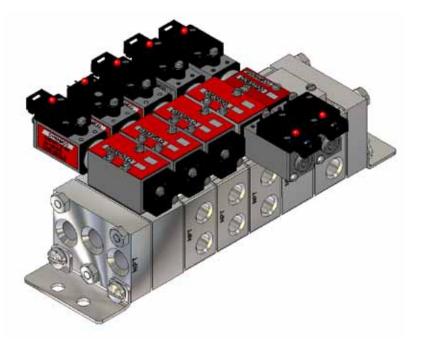
1/8" STACKABLE MANIFOLD

This manifold system is a flexible and versatile set of building blocks that can be used for all classes of DYNAMCO DASH series valves. Its modular design generally makes meeting special applications easy. Sealing plates with O-rings separate the modules which are joined together with three tie rods. All module sections are supplied as kits. Each kit comes with a base section, sealing plate, and O-rings. A special gallery block may be used to block off the supply and/or exhaust galleries.

EXAMPLE MANIFOLD STACK

The manifold stack shown on the following page covers a wide variety of options available in this family. The family consists of Headers, Center Modules, Master Modules, External Pressure Supply Modules, Gallery Block Kits and Mounting Brackets.

These parts can be assembled to combine DASH 1, DASH 2 and DASH 3 valves on the same manifold.Manifold assemblies can be side ported, bottom ported, or a combination of both. A Master Module can be used to allow air to supply the gallery only when that valve is energized.





MOUNTING AND THREADED RODS

Each mounting bracket comes with screws and washers for attaching to the header section. Order the actual quantity of mounting brackets needed. If only one bracket is needed on one end of the manifold, then order one. For manifolds needing brackets on both ends, order two. Threaded Rod Kits include 3 pieces of 12 in (30 cm) 8-32 threaded rod and 12 pieces 8-32 nuts. See the chart on page 45 for the overall manifold length, mounting hole location, and the approximate lengths to cut the threaded rods.

NOTES

Headers are required on both ends of the manifold. Supply and exhaust gallery ports are 1/4" pipe (NPT or BSPP).

All cylinder ports are 1/8" pipe (NPT or BSPP). A combination of both side and bottom ported modules can be assembled within the same manifold stack.

The Master Module controls the air supply to the module sections downstream of it. Energizing the DASH 3 on the Master Module supplies air to the manifold while de-energizing it exhausts the air. There are no cylinder ports available on the Master Module.

External Supply Modules are available for both DASH2 and DASH3 in side ported versions only. These sections are used when more than two different supply pressures are needed. These additional pressures are supplied through the 1/8" pipe port (NPT or BSPP) located on the side of the module opposite the cylinder ports.

A Gallery Block Kit includes a disc which fits inside of a gallery O-ring. When placed inside the proper sealing plate the block isolates the two sides of the gallery. One is needed for dual pressures and two or more are needed for multiple supply pressures.

There is no provision for pneumatic pilot port 12 on this manifold. Therefore, remote pilot solenoid valves and air pilot valves cannot be used on port 12.

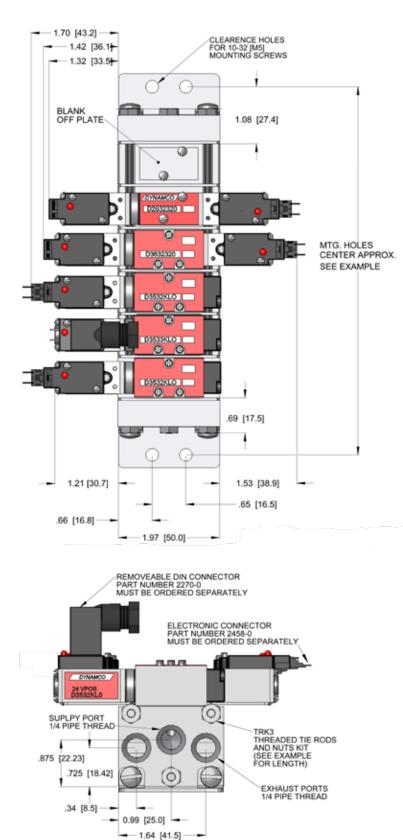
Dash 3 DOS solenoid valves cannot be mounted on adjacent stations. (Screws attaching solenoid protrude on the sides.)

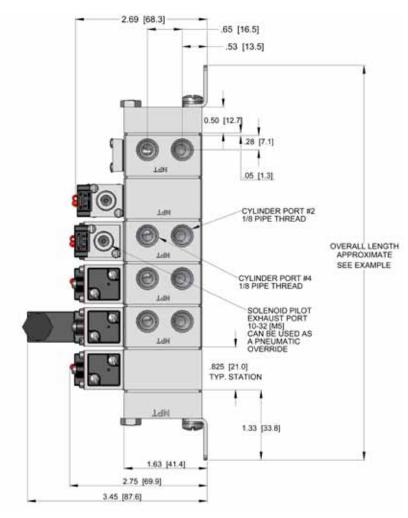
Blank-off plate assemblies are available to seal off unused stations. P/N 2550-0 covers DASH 1 stations, P/N 1438-4 for DASH 2 stations, and P/N 2355-0 for DASH 3 stations.

External Pressure Supply Modules used with Gallery Blocks allow provisions for multiple supply pressures.



Stackable Manifolds





EXAMPLE OF A 6-STATION MANIFOLD

Mounting Holes Centers:

6 stations x .825" + 2.15" with headers & Brackets = 7.10" (6 sta. x [21.0]+[54.6]=[180.6])

Overall Length:

6 sta. x .825" + 2.65" with two headers and brackets = 7.60" (6 sta. x [21.0]+[67.3]=[193.3])

Tie Rod Length:

6 sta. x .825" + 1.38" with two headers and one nut on the end of each rod= 6.33" (6 sta. x [21.0]+[35.0]=[161.0])



1/8" STACKABLE MANIFOLD PART NUMBER LIST

P/N for NPT Pipe Thread	Description	P/N for BSPP Pipe Thread
2877-1	Header (2 Required)	2878-1
3163-1	DASH 1 Side Ports Module	3164-1
2550-0	DASH 1 Blank Station Cover, Gasket, Screws	2550-0
2862-1	DASH 2 Side Ports Module	2863-1
2862-2	DASH 2 Side Ports Module with Port 14 Pilot	N/A
2866-1	DASH 2 Bottom Ports Module	2867-1
2891-1	DASH 2 Side Ports External Pressure Supply*	2892-1
1438-4	DASH 2 Blank Station Cover, Gasket, Screws	1438-4
2876-1	DASH 3 Master Module	2876-1
2876-2	DASH 3 Master Module with Port 14 Pilot	2876-2
2870-1	DASH 3 Side Ports Module	2871-1
2870-2	DASH 3 Side Ports Module with Port 14 Pilot	2871-2
2874-1	DASH 3 Bottom Ports Module	2875-1
2874-2	DASH 3 Bottom Ports Module with Port 14 Pilot	N/A
2895-1	DASH 3 Side Ports External Pressure Supply*	2896-1
2355-0	DASH 3 Blank Station Cover, Gasket, Screws	2355-0
2880-1	Mounting Bracket (1) (753-5 Lock Washer, 824-1 Screw)	2880-1
2882-1	Gallery Block Kit (1 Disc & 1 Ring)	2882-1
TRK3	Threaded Rod and Nuts (For 12 Valve Stack)	TRK3

