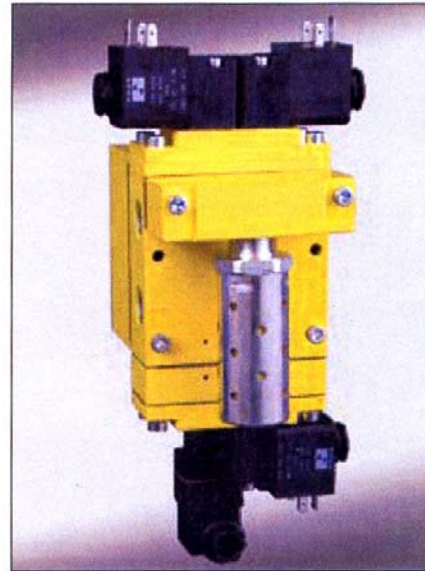


Model Number*	Port Size		C _v		Weight lbs (Kg)
	In-Out	Exh.	In-Out	Out-Exh.	
DM2ENA20**21	1/4	1/2	1.34	2.43	5.6 (2.43)
DM2ENA21**21	3/8	1/2	1.92	2.43	5.6 (2.43)

* NPT port threads. For BSPP threads, replace "N" in the model number with a "D".

** Insert voltage code: "A" = 24 VDC, "B" = 110 VAC, "C" = 220 VAC, "D" = 12 VDC.

This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses.



FEATURES:

- **Dynamic Monitoring with Memory:** Memory, monitoring, and air flow control functions are integrated into two identical valve elements for CAT 4 applications, except control of the clutch/brake mechanism on mechanical power press.. Valves lockout if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.
- **An action is required for reset** – cannot be reset by removing and re-applying supply pressure or electrical power. Reset can only be accomplished by the integrated electrical (solenoid) reset.
- **Basic 3/2 Normally Closed Valve Function:** Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. Teflon[®] back-up rings on pistons to enhance valve endurance – operates with or without inline lubrication.
- **Status Indicator:** Includes a pressure switch with both N.O. & N.C. contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition.
- **Silencers:** All models include high flow, clog resistant silencers.
- **Mounting:** Inline mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included).

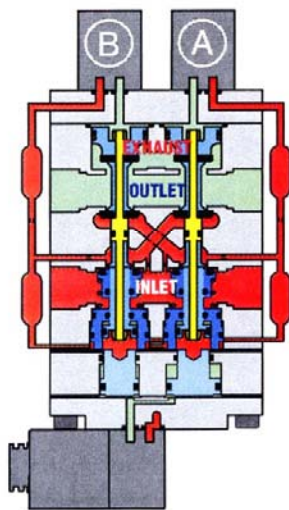
APPLICATIONS:

Category 4 applications - e.g. Air Dump/Release

Overview of *DM²*[®]E Double Valve Function

Valve de-actuated (ready-to-run):

The flow of inlet air pressure into the crossover passages from the inlet chamber is restricted by orifices that allow air pressure to bypass the lower inlet poppets. Flow is sufficient to quickly pressurize the pilot supply/timing chambers on both sides A and B. The upper inlet poppets prevent air flow from the crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the de-actuated position. (Air passages shown out of position for clarity.)



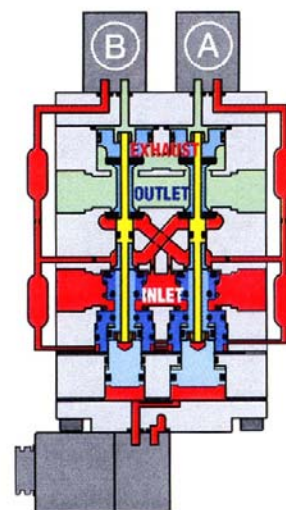
Valve ready-to-run.

the crossover acts on the differential of side A stem diameters creating a latching force.

Side B is in the de-actuated position, but has no pilot air available to actuate with and has full pressure on its upper and lower inlet poppets and return piston to hold it in place. Inlet air flow on side B into its crossover is restricted and flows through the open upper inlet poppet on side A, through the outlet into the the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. Also, the return springs can only return the valve elements to the intermediate (locked-out) position. Therefore, the valve will remain in the locked-out position even if the inlet air supply is removed and re-applied. A reset signal must be applied intentionally in order to reset the valve.

Resetting the valve:

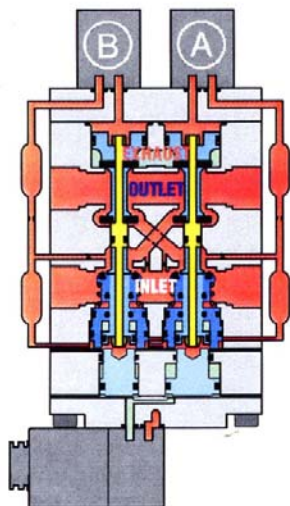
Reset is accomplished by momentarily energizing the reset solenoid. Actuation of the reset solenoid provides inlet air pressure to the reset pistons which physically push the main valve elements to their de-actuated position. Inlet air pressurizes the crossovers and volume chambers, thereby applying air to the return pistons which then hold the upper inlet poppets on seat. De-actuation of the reset solenoid removes pressure from the lower side of the reset pistons, thus allowing them to return to their de-actuated position.



Valve being reset.

Valve actuated:

Energizing the pilot solenoids simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated position, where inlet air flow to outlet is open and both exhaust poppets are closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the main solenoids causes the valve elements to return to the ready-to-run (de-actuated) position.



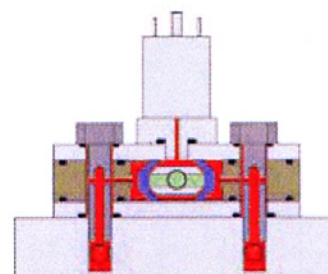
Valve actuated.

Reset anti-tie-down feature:

Attempting to energize the valve's main solenoids while the reset solenoid is energized will cause side B to shift (overcoming the pressure on the small reset piston), but side A will not move due to the pressure on the larger reset piston on that side. This will cause the valve to go into and remain in the locked-out position until a reset signal is applied while the main solenoids are de-energized.

Status indicator:

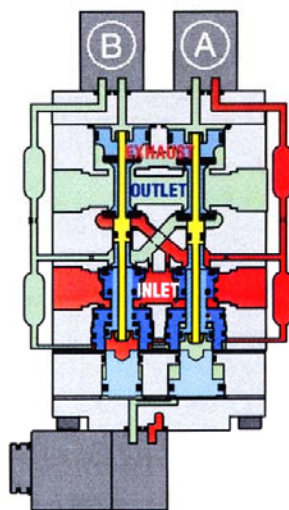
The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or when inlet pressure is removed. This device is not part of the valve lock-out function, but, rather, only reports the status of the main valve.



Status indicator in normal ready-to-run position.

Valve locked-out:

Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will shift into a locked-out position. In the locked-out position, one crossover and its related timing chambers will be exhausted, and the other crossover and its related timing chambers will be pressurized. The valve element (side A) that is partially actuated has pilot air available to actuate it, but there is no air pressure on the return piston to de-actuate that valve element. Air pressure in



Valve locked out.

STANDARD SPECIFICATIONS

Pilot Solenoid Power Consumption (each solenoid): 6.0 W on DC; 13.6 VA inrush and 8.5 VA holding on AC.

Solenoids: According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Connector socket according to DIN 43650 Form A. Three solenoids, rated for continuous duty.

Standard Voltages: 110 VAC, 50/60 Hz; 24 VDC.

Reset Solenoid Power Consumption: 6.0 W on DC; 13.6 VA inrush and 8.5 VA holding on AC.

Temperature Range:

Ambient: 15 to 122° F (4 to 50° C).

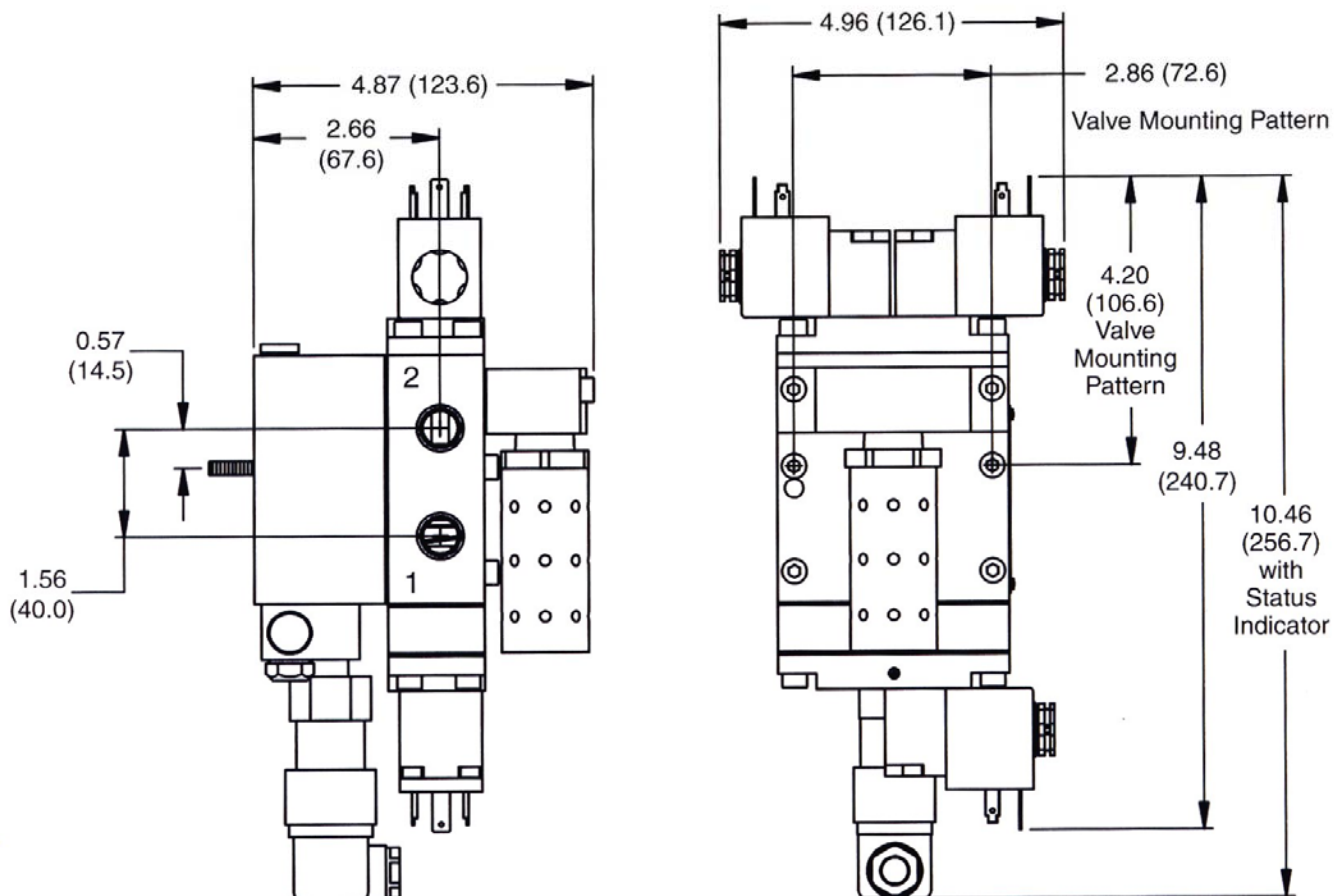
Media: 40 to 175° F (4 to 80° C).

Flow Media: Filtered (5 micron recommended), lubricated or unlubricated air (mineral oils according to DIN 51519, viscosity classes 32-46).

Inlet Pressure: 30 to 116 psig (2 to 8 bar).

Pressure Switch (Status Indicator) Rating: Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC.

DIMENSIONS – inches (mm)



Accessories and Replacement Parts

ELECTRICAL CONNECTORS

Wired connectors have a 2-meter (6 1/2 ft.) cord with three 18-gauge conductors. Cord is available in either 6-mm or 10-mm diameter and with or without indicator light.

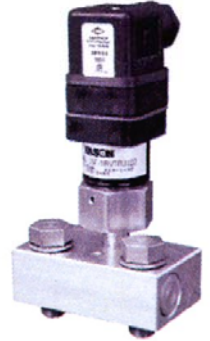


	<u>Without Light</u>	<u>With Light 24 VDC</u>	<u>With Light 110 VAC</u>
Wired with 6-mm cord	721K77	720K77-W	720K77-Z
Wired with 10-mm cord	371K77	383K77-W	383K77-Z
For threaded conduit	723K77	724K77-W	724K77-Z
For use with drop cord (cord not included)	937K87	936K87-W	936K87-Z

For additional wiring kit accessories, please see Form NPS011 available at www.rosscontrols.com/rosslit.htm

STATUS INDICATOR

The Status Indicator pressure switch actuates when the valve is in a ready-to-run condition and de-actuates when the valve is in a lockout condition or when the inlet air pressure has been removed. Although, the valves can be purchased with this option already installed, the Status Indicator can be purchased separately by ordering part number: **Y670B94**



For more information on control-reliable valves or other pneumatic safety equipment, please contact our office or visit our website:

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