NEW ROSS®

DM²® and DM¹ Series C and E

Control Reliable Double Valves and Preassembled Wiring Kits

• *Manufacturers of Premium Pneumatic Controls since 1921* •

ROSS®

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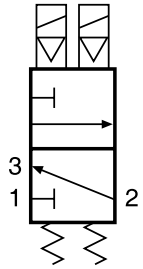
New Product Introduction

DM[1] Series E
Control Reliable
Double Valve
with Dynamic Monitoring
Size 2

Simplified Schematic



Model Number*	Port Size In-Out	Port Size Exh.	C_V In-Out	C_V Out-Exh.	Weight lb (Kg)
DM1ENA20**31	1/4	1/2	1.34	2.43	5.0 (2.27)
DM1ENA21**31	3/8	1/2	1.92	2.43	5.0 (2.27)

* NPT port threads. For BSPP threads , replace “N” in the model number with a “D”.
** Insert voltage code: “A” = 24 volts DC, “B” = 110 volts AC, “C” = 220 volts AC, “D” = 12 volts DC.

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

FEATURES:

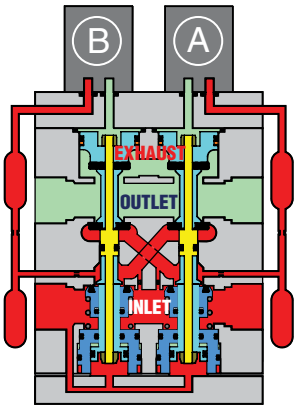
- **Dynamic Monitoring:** Monitoring and air flow control functions are integrated into two identical valve elements for CAT 3 applications. The valve exhausts downstream air if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply. If the abnormality clears itself, the valve will return to the ready-to-run state; there is no memory of the abnormal behavior, as in ROSS’ DM[2®] Series E and DM[2®] Series C products that require an intentional reset following lockout.
- **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.
- **Ready-to-run:** If an abnormality clears itself upon the removal of electricity to both solenoids, it will be ready-to-run again. It does not remember the abnormality & stay in a locked-out state until intentionally reset. Therefore, cumulative abnormalities may go undetected.
- **Status Indicator:** The above products include a pressure switch with both NO & NC contacts to provide status feedback to the control system indicating whether the valve is in the “ready-to-run” condition or has experienced abnormal function. This indicator only reports status it is not part of a lockout function.
- **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:

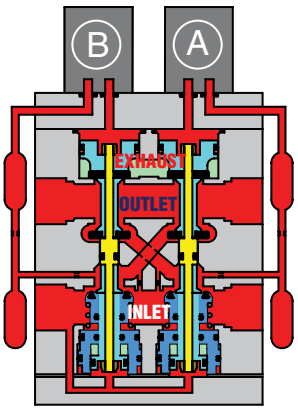
Category 3 applications - e.g. Air Dump/Release.

Overview of DM[1] Series 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. (Internal air passages shown out of the valve body for clarity.)



Valve ready-to-run.

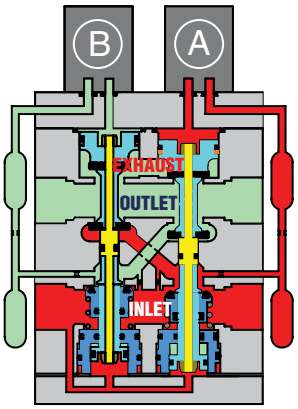


Valve actuated.

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.

Asynchronous operation:
If the valve elements operate in a sufficiently asynchronous manner on ACTUATION, the valve will shift into a position where one crossover and its related timing chambers will be exhausted, and the other crossover and its related timing chambers will be pressurized.

In the illustration, 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.

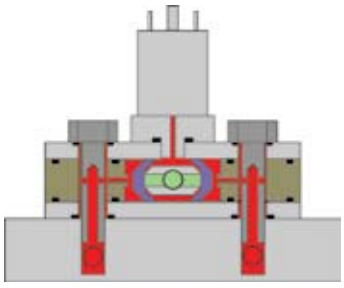


Valve in restricted outlet to exhaust state.

Once the main solenoids are de-energized, actuating pressure is removed from the top of the main pistons and then the lower inlet poppet return spring along with inlet air pressure acting on the side A return piston will push side A back into the de-actuated position. Inlet air pressurizes the crossovers and volume chambers. Pressure in the crossovers helps hold the upper inlet poppets on seat. The valve will then be in the ready-to-run position. On the next attempt to actuate normally, if side B is still unable to actuate synchronously with side A, the same sequence of events described above will occur again.

WARNING:
If asynchronous operation occurs while DE-ACTUATING, the pilot supply/timing chambers on one side will still be exhausted as described above. However, this could be a temporary situation because the cause of the asynchronous operation may be able to correct itself allowing the stuck or slow acting side of the valve to eventually move back into the de-actuated position. Once the slow or stuck side has de-actuated, the pilot supply/timing chambers that were exhausted will then repressurize. If an external monitoring system is only checking the status indicator periodically this fault signal could be missed. The machine's safety system must be designed to ensure that this does not cause a hazardous situation.

Status indicator:
The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve operation is sufficiently asynchronous or 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.

STANDARD SPECIFICATIONS

Pilot Solenoid Power Consumption (each solenoid): 6.0 watts on DC; 15.8 VA inrush and 10.4 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 volts AC, 50/60 Hz; 24 volts DC.

Temperature Range:

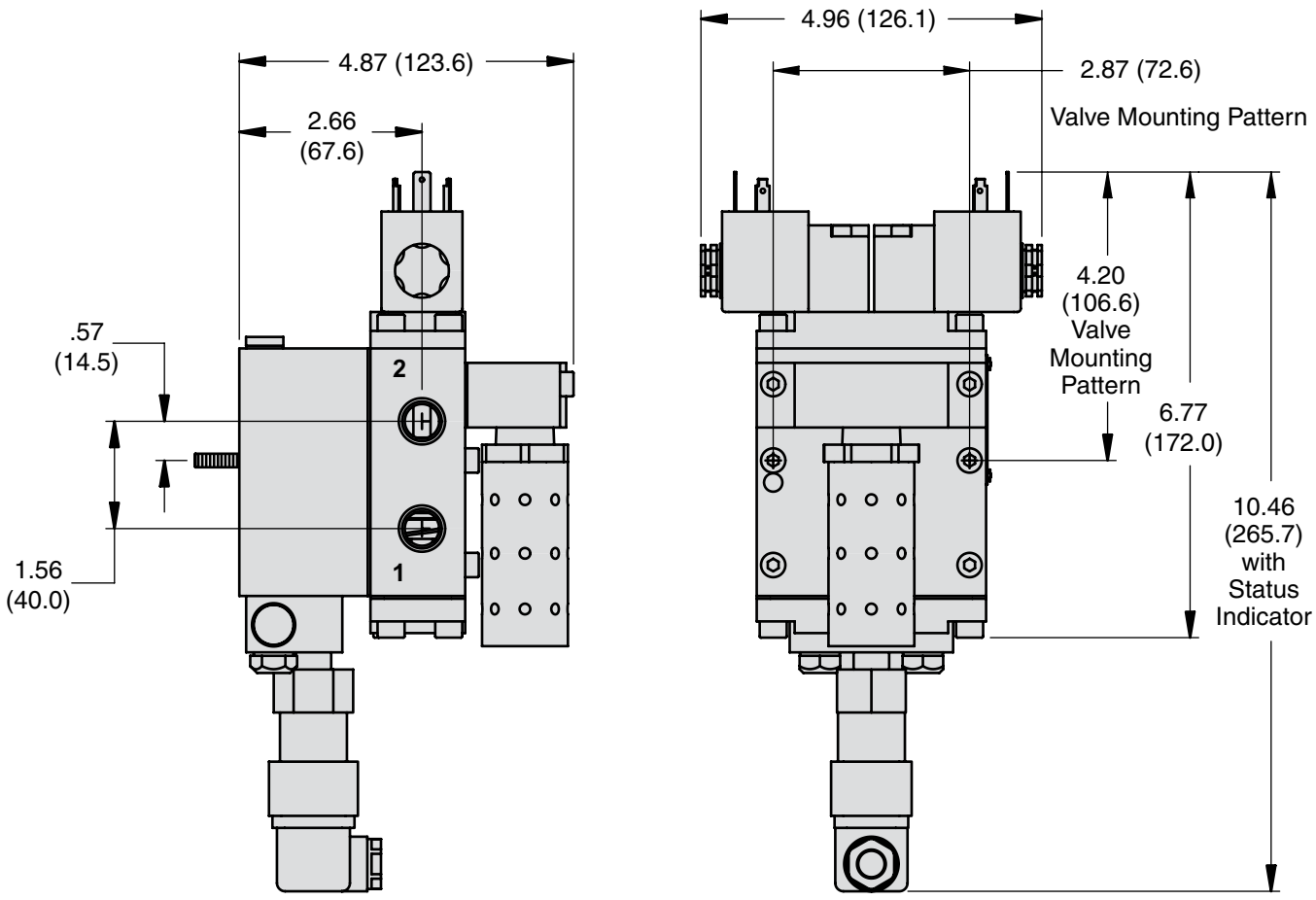
Ambient: 15° to 122°F (4° to 50°C).
Media: 40° to 175°F (4° to 80°C).

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

ELECTRICAL CONNECTORS

Wired connectors have a 2-meter (6½ ft) cord with three 18-gauge conductors. Cord is available in either 6-mm or 10-mm diameter and with or without indicator light.

	Without Light	With Light 24 VDC	With Light 110 VAC
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.

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.**

Company Information

Since 1921 ROSS CONTROLS® has been manufacturing the highest quality pneumatic valves. Founded by three families and still privately held, Ross has grown from a small Michigan valve company into a company with global subsidiaries and distribution throughout the world. It is this global presence that allows Ross to focus on specific industries and provide the support required in our integrated world. Ross continues to lead in industries such as safety by providing products to meet or exceed the specific requirements of those industries as well as the global standards.

Our global safety team can assist with system and product selection and provide solutions that help customers standardize globally.

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Standard ROSS warranty and cautions apply, available upon request or at www.rosscontrols.com.

ROSS EUROPA GmbH
Germany
Fax: 49-6103-74694
info@rosseuropa.com

ROSS ASIA® K.K.
Japan
Fax: 81-427-78-7256
custsvc@rossasia.co.jp

ROSS UK Ltd.
United Kingdom
Fax: 44-121-559-5309
sales@rossuk.co.uk

ROSS CONTROLS® INDIA Pvt. Ltd.
India
Fax: 91-44-2625-8730
rossindia@airtelbroadband.in

ROSS SOUTH AMERICA Ltda.
Brazil
Fax: 55-11-4335-3888
vendas@ross-sulamerica.com.br

DIMAFLUID s.a.s.
France
Fax: 33-01-4945-6530
dimafluid@dimafluid.com

ROSS CONTROLS (CHINA) Ltd.
China
Fax: 86-21-6915-7960
alvinzhurong@vip.163.com

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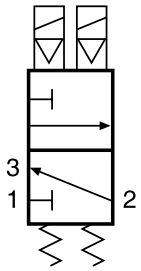
New Product Introduction

DM²® Series E
Control Reliable
Double Valve with Dynamic Monitoring & Memory
Size 2

Simplified Schematic



Model Number*	Port Size In-Out	Port Size Exh.	C_v In-Out	C_v Out-Exh.	Weight lb (Kg)
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 volts DC, "B" = 110 volts AC, "C" = 220 volts AC, "D" = 12 volts DC.

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

FEATURES:

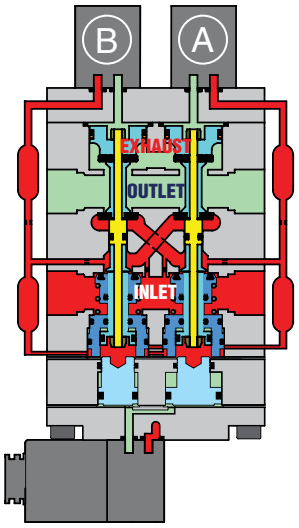
- **Dynamic Monitoring with Memory:** Memory, monitoring, and air flow control functions are integrated into two identical valve elements for CAT 4 applications, except control of the clutch/brake mechanism on mechanical power press. Valves lockout if asynchronous movement of valve elements occurs during 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 NO & NC 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:

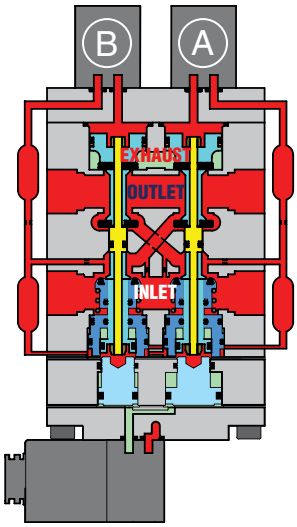
Category 4 applications - e.g. Air Dump/Release.

Overview of DM²® Series 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.)



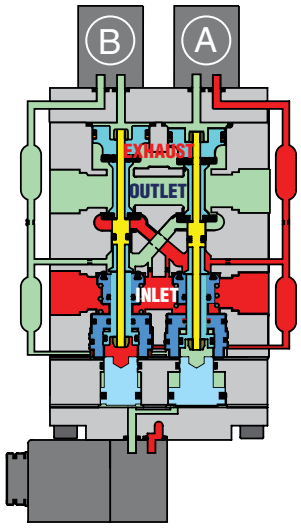
Valve ready-to-run.



Valve actuated.

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.

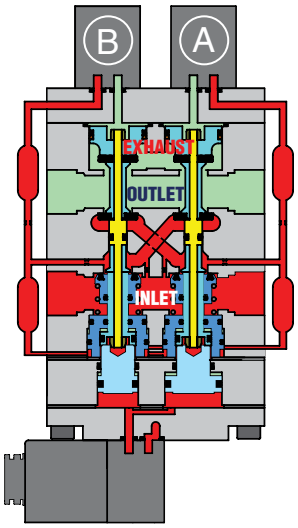
Valve locked-out:
Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will shift into a locked-out position. In the locked-out position, one crossover and its related timing chambers will be exhausted, and the other crossover and its 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 the crossover acts on the differential of side A stem diameters creating a latching force.



Valve locked-out.

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.

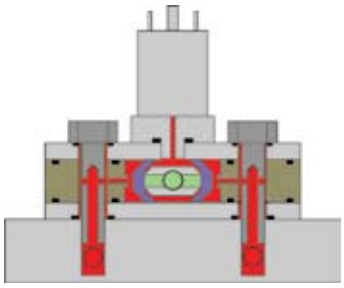
Resetting the valve:
Reset is accomplished by momentarily energizing the reset solenoid. Actuation of the reset solenoid provides inlet air pressure to the reset pistons which physically push the main valve elements to their de-actuated position. Inlet air pressurizes the crossovers and volume chambers, 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.

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 lockout function, but, rather, only reports the status of the main valve.


Status indicator in normal ready-to-run position.

STANDARD SPECIFICATIONS

Pilot Solenoid Power Consumption (each solenoid): 6.0 watts on DC; 15.8 VA inrush and 10.4 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 volts AC, 50/60 Hz; 24 volts DC.

Reset Solenoid Power Consumption: 6.0 watts on DC; 15.8 VA inrush and 10.4 VA holding on AC.

Temperature Range:

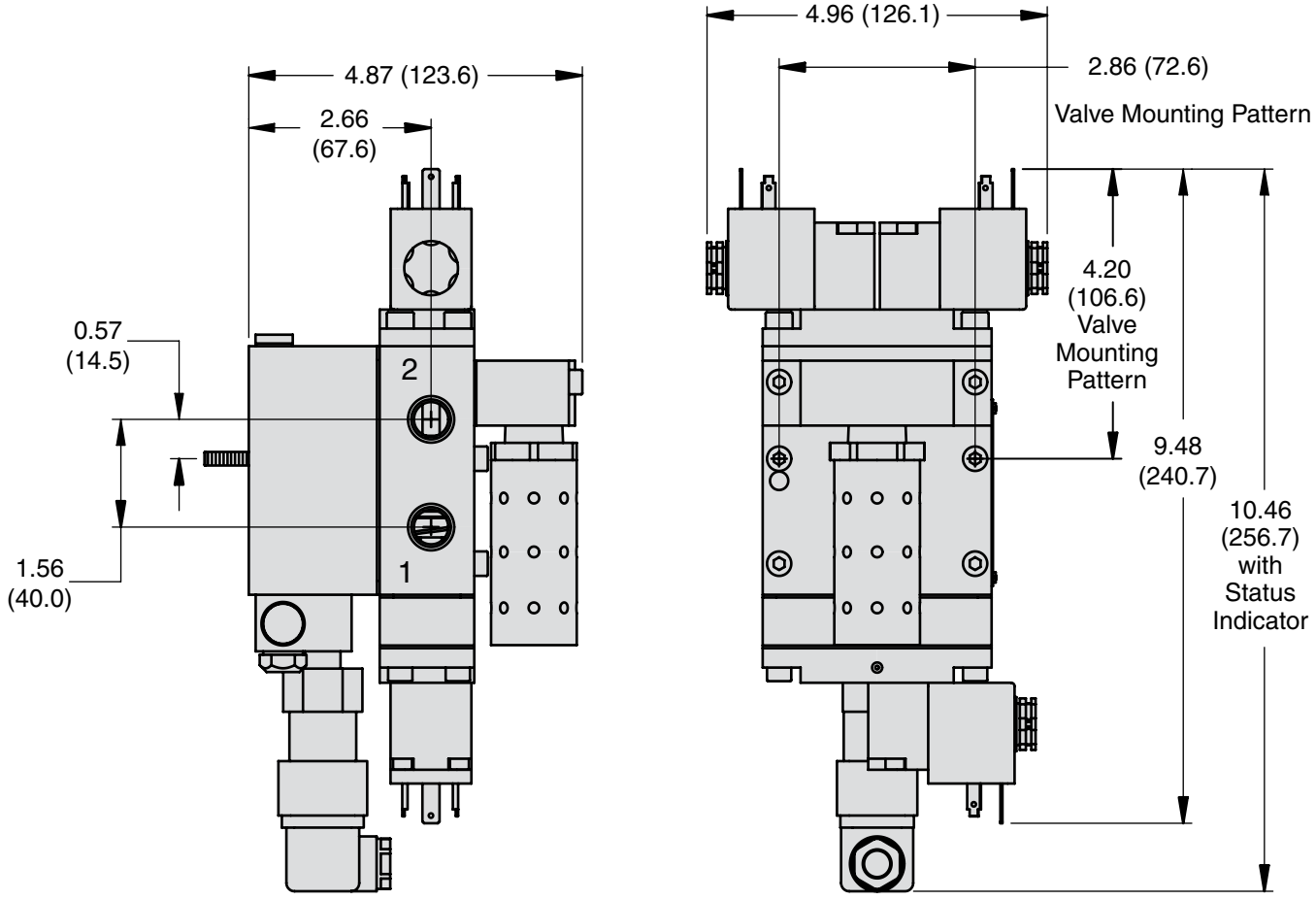
Ambient: 15° to 122°F (4° to 50°C).
Media: 40° to 175°F (4° to 80°C).

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)



ELECTRICAL CONNECTORS

Wired connectors have a 2-meter (6½ ft.) cord with three 18-gauge conductors. Cord is available in either 6-mm or 10-mm diameter and with or without indicator light.

	Without Light	With Light 24 VDC	With Light 110 VAC
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

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.**

Company Information

Since 1921 ROSS CONTROLS® has been manufacturing the highest quality pneumatic valves. Founded by three families and still privately held, Ross has grown from a small MI valve company into a company with global subsidiaries and distribution throughout the world. It is this global presence that allows Ross to focus on specific industries and provide the support required in our integrated world. Ross continues to lead in industries such as safety by providing products to meet or exceed the specific requirements of those industries as well as the global standards.

Our global safety team can assist with system and product selection and provide solutions that help customers standardize globally.

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ROSS EUROPA GmbH
Germany
Fax: 49-6103-74694
info@rosseuropa.com

ROSS ASIA® K.K.
Japan
Fax: 81-427-78-7256
custsvc@rossasia.co.jp

ROSS UK Ltd.
United Kingdom
Fax: 44-121-559-5309
sales@rossuk.co.uk

ROSS CONTROLS® INDIA Pvt. Ltd.
India
Fax: 91-44-2625-8730
rossindia@airtelbroadband.in

ROSS SOUTH AMERICA Ltda.
Brazil
Fax: 55-11-4335-3888
vendas@ross-sulamerica.com.br

DIMAFLUID s.a.s.
France
Fax: 33-01-4945-6530
dimafluid@dimafluid.com

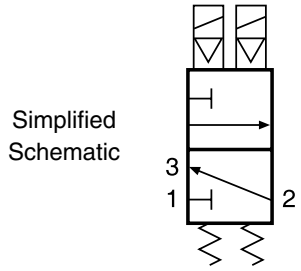
ROSS CONTROLS (CHINA) Ltd.
China
Fax: 86-21-6915-7960
alvinzhurong@vip.163.com

Printed in the U.S.A. – Rev. 05/09

New Product Introduction

DM2® Series C
Control Reliable
Double Valve with Dynamic Monitoring & Memory

Sizes 4, 8, 12 and 30



Valve Size	Model Number*	Port Size Inlet	Outlet	C_v 1 to 2	Weight lb (Kg)
4	DM2CNA42**21	1/2	1/2	3	5.9 (2.6)
8	DM2CNA54**21	3/4	3/4	4.4	8.4 (3.7)
8	DM2CNA55**21	1	1	4.4	8.4 (3.7)
12	DM2CNA66**21	1	1	8.5	15.3 (6.7)
30	DM2CNA88**21	1½	2	22	34.7 (15.1)

* NPT port threads. For BSPP threads , replace “N” in the model number with a “D”.
** Insert voltage code:
“A” = 24 volts DC, “B” = 110 volts AC, “C”*** = 220 volts AC.
** 220 volts AC not available in the U.S. (OSHA regulations limit press control voltage to no more than 120 volts AC.

FEATURES:

Size 4, 8, 12 and 30

- Dynamic Monitoring With Memory: Memory, monitoring, and air flow control functions are integrated into two identical valve elements. 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. Reset can only be accomplished by the optional 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 (Optional): Includes a pressure switch with both NO & NC contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition. The Status Indicator can be ordered installed or purchased separately and added to any DM2® Series C base.
- Silencers: All models include high flow, clog resistant silencers.
- Mounting: Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

Size 12 and 30

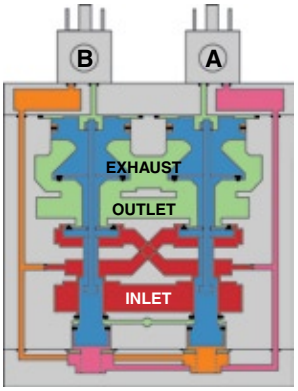
- Intermediate Pilots: Increase pilot air flow for fast valve response and make it possible to use the same size solenoids as valve sizes 4 & 8, thereby reducing electrical power requirements for these larger valves.

APPLICATIONS:

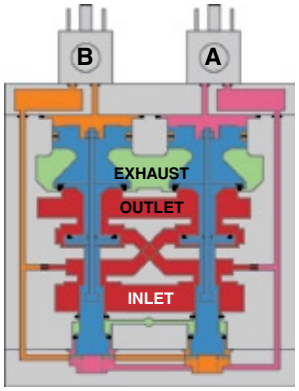
Category 4 applications - e.g. Air Dump/Release

Overview of DM²® Series C Double Valve Function

The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply/timing chambers A and B. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position.(Air passages shown out of position and reset adapter omitted for clarity.)



Valve ready to run.

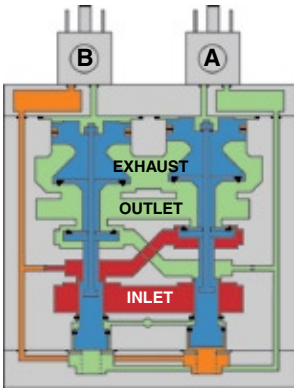


Valve actuated.

Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position, where inlet air flow to crossover passages is fully open, inlet poppets are fully open and exhaust poppets are fully closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized.

De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.

Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element. Air pressure in the crossover acts on the differential of side B stem diameters creating a latching force.



Valve locked-out.

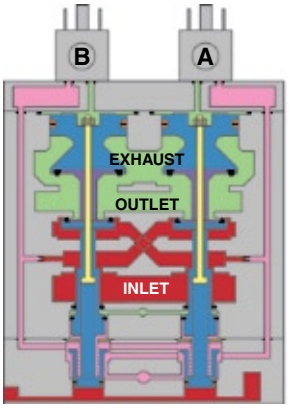
Side A is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position.

Inlet air flow on side A into its crossover is restricted, and flows through the open inlet poppet on side B, 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.

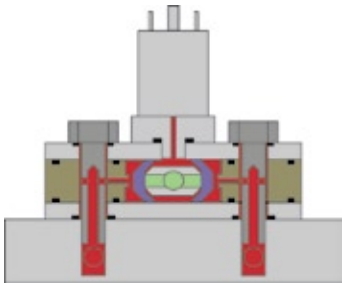
The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.

The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied. A remote reset signal must be applied to reset the valve.

Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset. (Reset adapter added to illustration.)



Valve being reset.



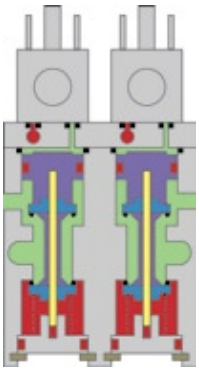
Status indicator (optional) in normal ready to run position.

De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize.

Reset pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid mounted on the reset adapter.

The optional 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 inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.

Size 12 and 30 valves require relatively large pilots to actuate and de-actuate the main valve elements. In order to achieve extremely quick valve response for such large pilots, a 2-stage solenoid pilot system is incorporated into the design. This keeps the required electrical current to operate the pilots to a minimum.



Size 12 & 30 pilots.

STANDARD SPECIFICATIONS

Pilot solenoid: According to VDE 0580. Rated for continuous duty.

Standard voltages: 24 volts DC, 110 volts AC (50/60 Hz), 220** VAC (50/60 Hz). For other voltages consult ROSS.
** 220 volts AC not available in the U.S. (OSHA regulations limit press control voltage to no more than 120 volts AC.

Power consumption (each solenoid):

Size 4, 12, 30: Primary and reset solenoids: 5.8 watts on DC; 15.8 VA inrush and 12.8 VA holding on AC.

Size 8: Primary solenoids: 15 watts on DC; 36 VA inrush and 23 VA holding on AC.

Reset solenoid: 5.8 watts on DC; 15.8 VA inrush and 12.8 VA holding on AC.

Enclosure rating: IP65, IEC 60529.

Electrical connection: DIN 43650. Order connectors separately.

Ambient temperature: 15° to 122°F (-10° to 50°C).

Media temperature: 40° to 175°F (4° to 80°C).

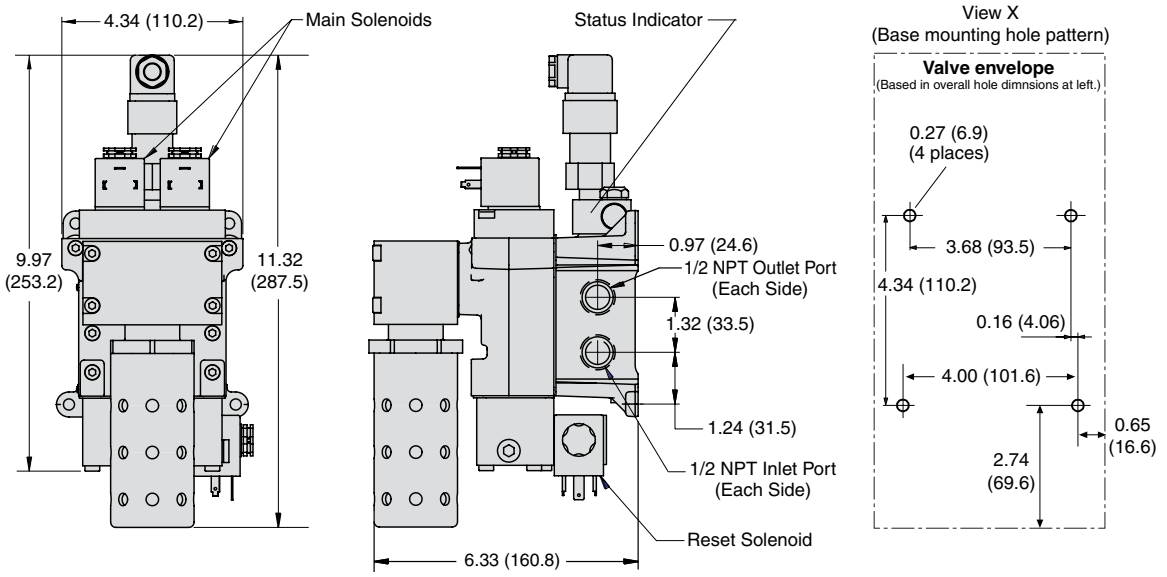
Flow Media: Compressed air, filtered (5 micron recommended), lubricated or unlubricated (mineral oils according to DIN 51519/ ISO-VG, viscosity classes 32-46).

Inlet Pressure: 30 to 120 psig (2 to 8 bar).

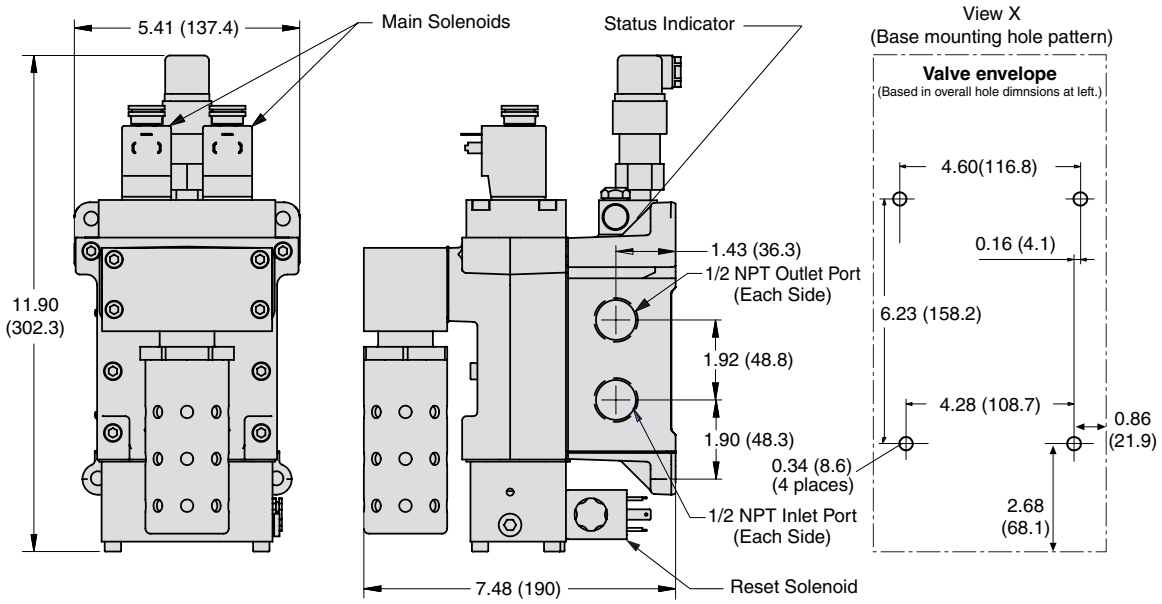
Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.

Mounting orientation: preferably horizontally (valve on top of base) or vertically with pilot solenoids on top.

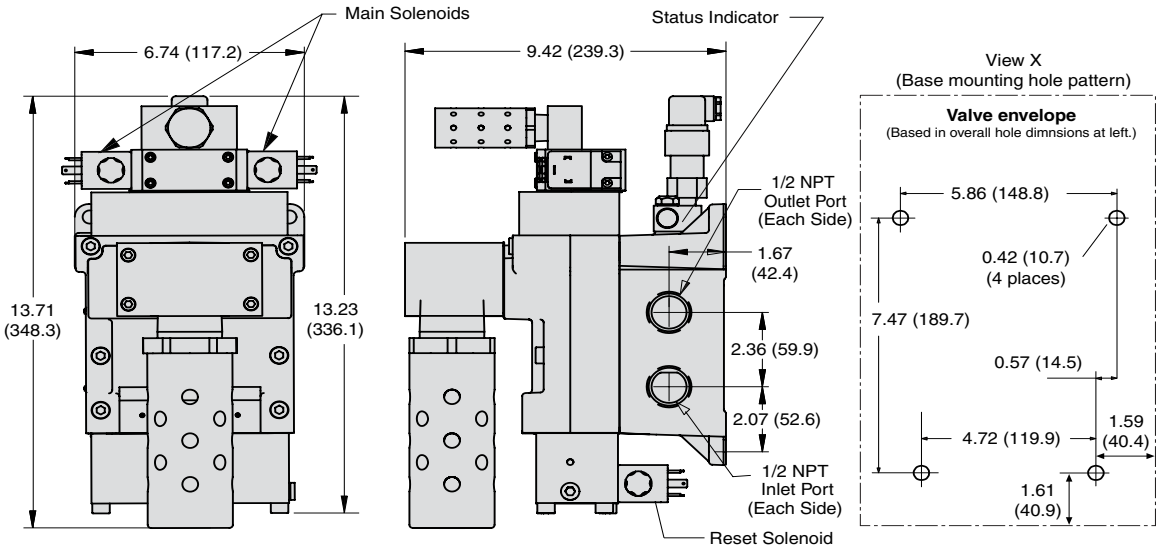
SIZE 4 DIMENSIONS – inches (mm)



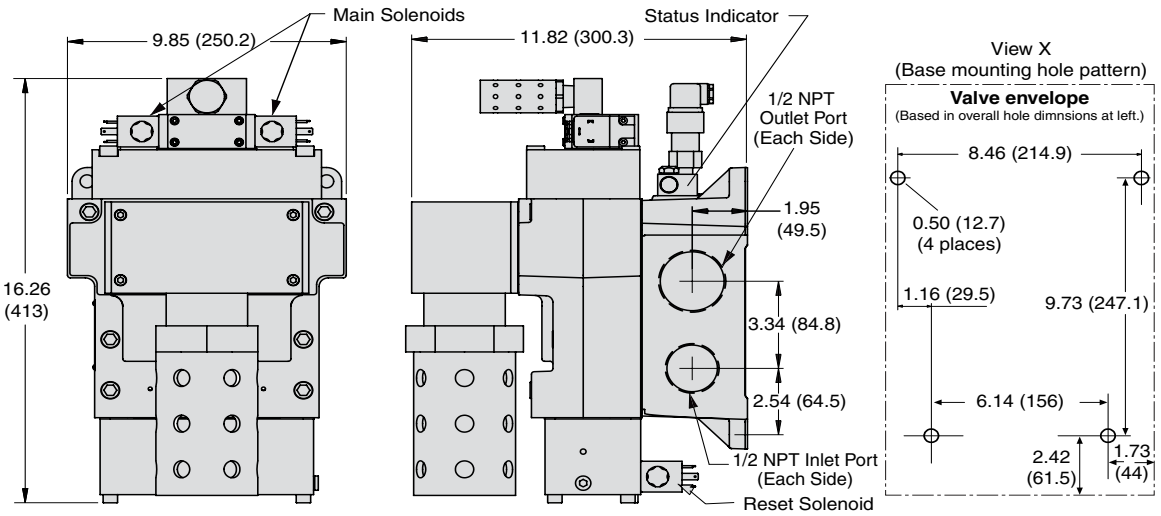
SIZE 8 DIMENSIONS – inches (mm)



SIZE 12 DIMENSIONS – inches (mm)



SIZE 30 DIMENSIONS – inches (mm)



ACCESSORIES

ELECTRICAL CONNECTORS

Wired connectors have a 2-meter (6½ ft.) cord with three 18-gauge conductors. Cord is available in either 6-mm or 10-mm diameter and with or without indicator light.

	Without Light	With Light 24 VDC	With Light 110 VAC
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

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**

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China
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Printed in the U.S.A. – Rev. 05/09

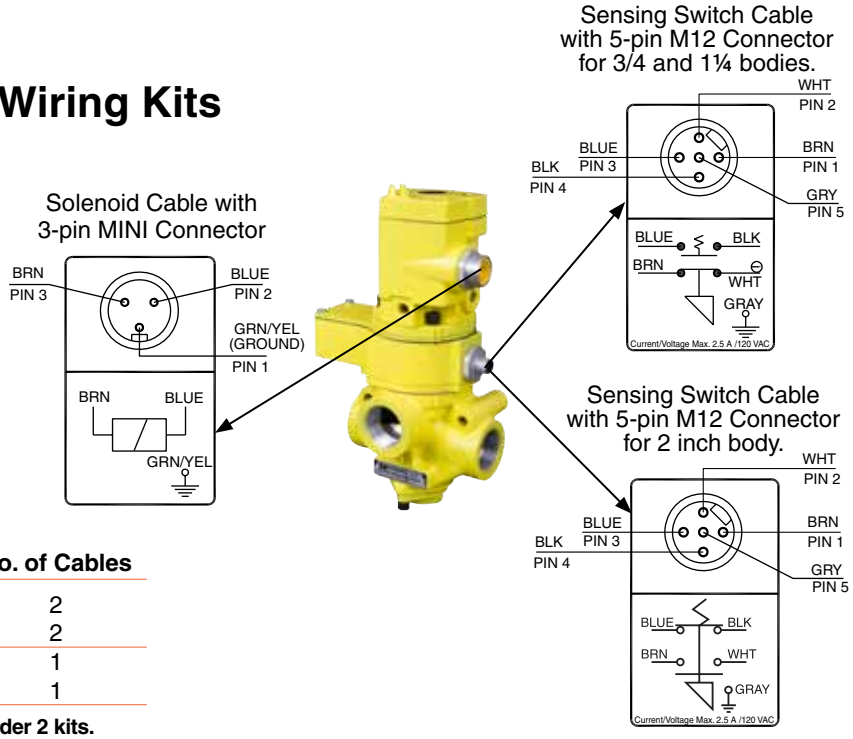
New Product Introduction

Preassembled Wiring Kits

Series SV27 Sensing Valves Wiring Kits

DESCRIPTION:

These kits are available in lengths of 4 or 10 meters, with a cord grip for each cable. The kits for solenoid piloted SV27 models come with 2 cables; one with a 3-pin MINI connector for the solenoid and one with a 5-pin M12 (Micro) connector for the sensing switch. The kits for the air piloted models include only one cable with a 5-pin M12 connector for the sensing switch. (Note: Each cable has one connector.)



Kit Number	Valve Type	Length (meters)	No. of Cables
2239H77	Solenoid Pilot	4	2
2240H77	Solenoid Pilot	10	2
2241H77	Air Pilot	4	1
2242H77	Air Pilot	10	1

For Redundant SV27 (CAT 3) Pilot Operated Check valve order 2 kits.

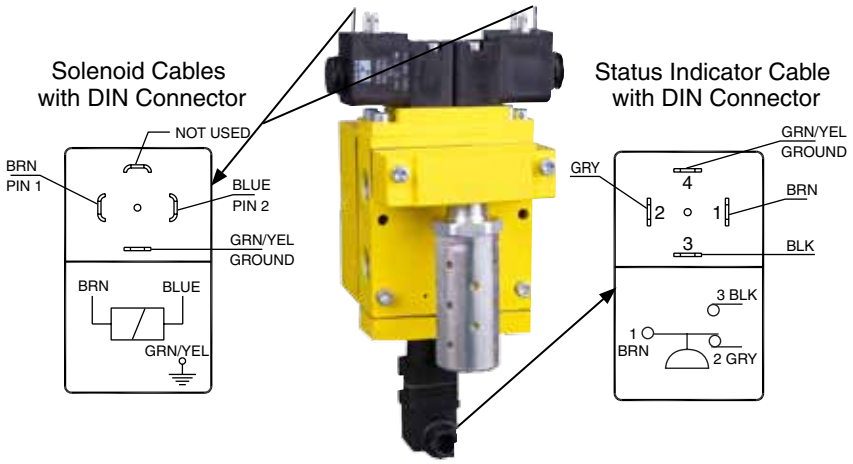
DM[1] Series E Wiring Kits

DESCRIPTION:

These kits include 2 cables with either a DIN or M12 connector plus a cord grip for each. They are available in lengths of 5 or 10 meters. Separate kits are available for the Status Indicator.
(Note: Each cable has one connector.)

Status Indicator kits include one cable with DIN connector and a cord grip.

Kit Number	Length (meters)
2247H77	5
2248H77	10



Kit Number	Solenoid Connector Type	Length (meters)
2243H77	DIN	5
2244H77	DIN	10
2245H77	M12	5
2246H77	M12	10

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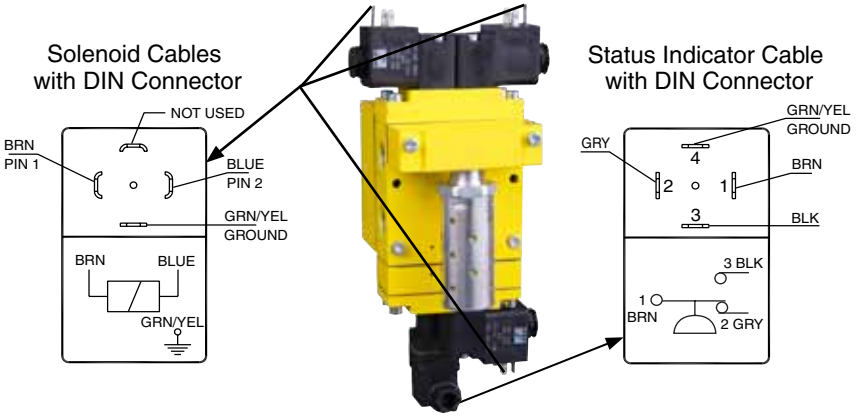
alvinzhurong@vip.163.com

DM²® Series Wiring Kits

Standard Wiring Kits

DESCRIPTION:

Kits include three cables for the solenoids and one cable for the status indicator. All cables come with a cord grip. Solenoid cables come with either DIN or M12 connectors. They are available in lengths of 5 or 10 meters.
(Note: Each cable has one connector.)



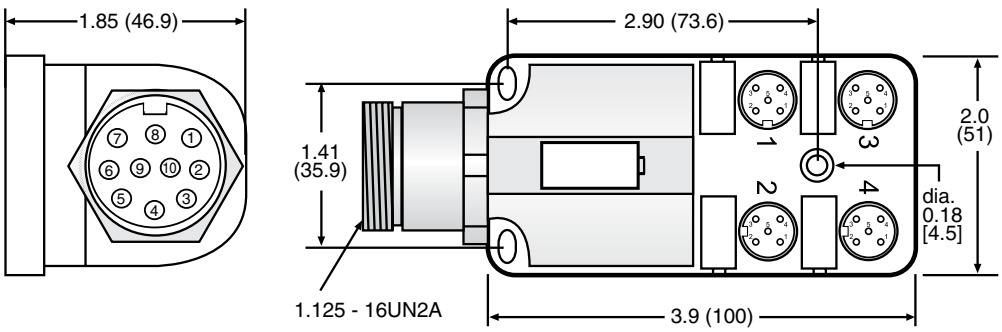
Kit Number	Solenoid Connector Type	Length (meters)
2283H77	DIN	5
2284H77	DIN	10
2288H77	M12	5
2289H77	M12	10

Wiring Kits with J-Box

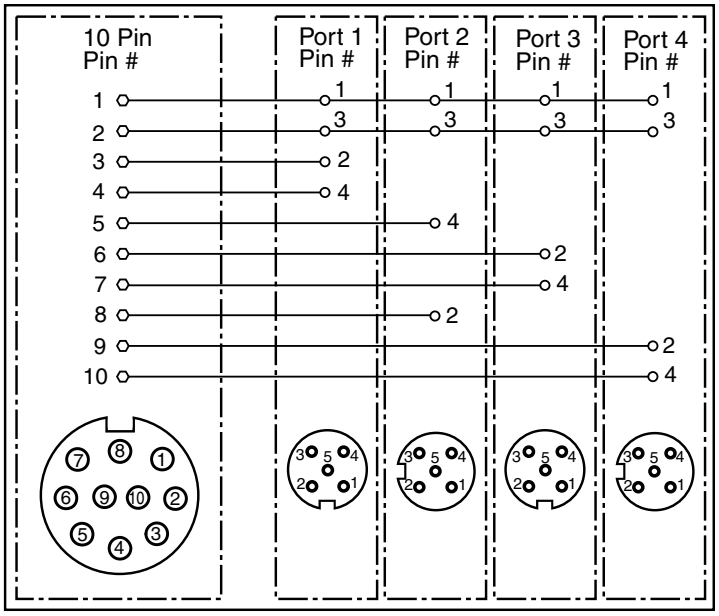
DESCRIPTION:

A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM²® Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and a DIN connector on the other end (M12-DIN). Standard valves come with DIN type solenoid connections, but could be bought with M12 type connections as well. Therefore we also offer a kit that provides solenoid cables with an M12 connector on each end (M12-M12).

Kit Number	Solenoid Connector Type	Length (meters)
2249H77	M12 - DIN	1
2250H77	M12 - M12	1



J-Box Wiring



10 PIN MINI Cable

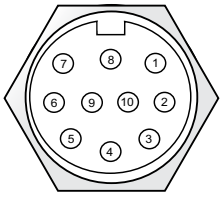
DESCRIPTION:

These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip.

Cable conductors are 18 gage wire.

Kit Number	Length (feet)
2253H77	12
2254H77	20
2255H77	30
2256H77	50

PIN #	Wire Colors:
1	Orange
2	Blue
3	White/black
4	Red/black
5	Green/black
6	Orange/black
7	Red
8	Green/yellow
9	Black
10	White



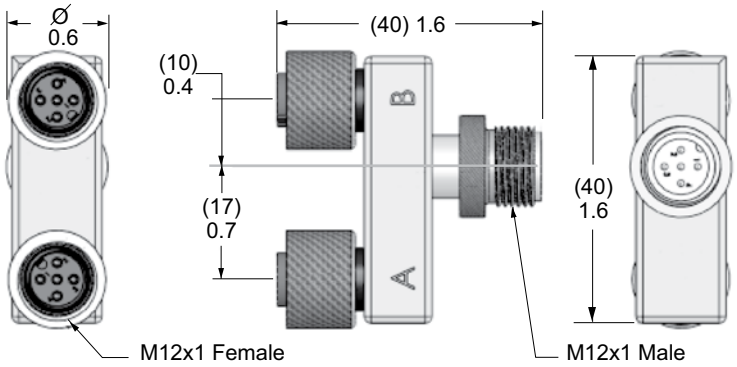
Outlet Port Pressure Monitoring Wiring Kit

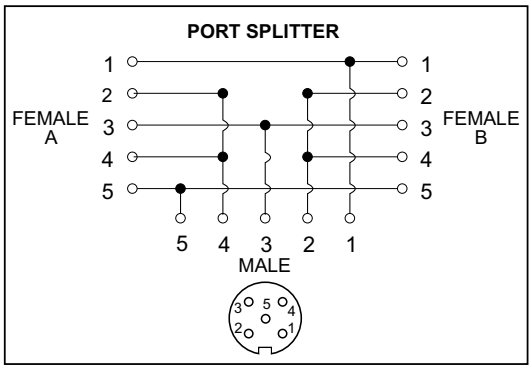
DESCRIPTION:

Some customers prefer to monitor downstream pressure in addition to using the DM2® or DM1 Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring wiring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).

Kit Number 2251H77

Pressure switch not included. A pressure switch is available separately - order part number 586A86.





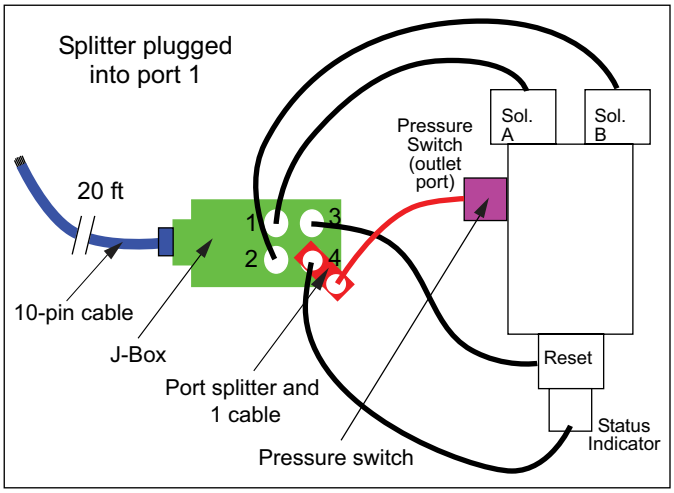
Example of Connecting a DM²® Series valve with a J-BOX Kit and an Outlet Port Monitoring Kit.

2249H77
J-Box and 4 cables (M12 to DIN) - 1 meter length.

2254H77
10-pin cable - 20 foot length.

2251H77
Port splitter and 1 cable (M12 to DIN) - 1 meter length.
(aka - Outlet Port Pressure Monitoring Wiring Kit)

586A86
Pressure switch for outlet port pressure monitoring.



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For over 60 years Ross has produced redundant monitored valves for safety applications. The DM2® Series C and Series E are our latest control-reliable valve series that are third party certified for category 3 and 4 applications. Our SV series is third party certified for category 2 and 3 applications. 2008 marked the 46th anniversary for our pneumatic energy isolation L-O-X® valve series. All of our safety products meet or exceed the global safety requirements for machine safeguarding and energy isolation. Our global safety team can assist with system and product selection and provide solutions that help customers standardize globally.

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