



# SAFE EXHAUST MDC SERIES VALVES

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## PRODUCT CATALOG

# Safe Exhaust MDC Series Valves with & without Soft-Start (EEZ-ON®)

## Product Overview

### Safety Function

The MDC Series valve safety function is to shut off supply or pneumatic energy and to exhaust any pneumatic energy from downstream of the valve.



Illustration examples.

The MDC Series valve is designed to supply air to a zone or entire machine/system until signaled to shut off and exhaust residual downstream pneumatic energy from the machine. Thus, reducing the hazards associated with the presence of residual energy during employee access and/or minor servicing.

### VALVE FEATURES

|                                              |                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety Control                               | MDC1 Series valves without solid state pressure sensor are rated for Category 1, PL c.<br>MDC2 Series valves with solid state pressure sensor are rated for Category 2, PL c, when used with proper safety controls. The “fail-to-safe” safety function is ensured as long as the poppet is able to go back into the start position. |
| External Monitoring                          | Monitoring the sensor on each actuation and de-actuation of the MDC2 Series valve provides a diagnostic coverage between 60% < 90%                                                                                                                                                                                                   |
| Poppet Design                                | Dirt tolerant, wear compensating for quick response and high flow capacity                                                                                                                                                                                                                                                           |
| Soft-Start Function                          | On energization, the Soft-Start (EEZ-ON®) allows outlet pressure to increase at a slower rate until it reaches approximately 50% of inlet pressure, at which point the valve will then open fully to finish filling the system at full rate                                                                                          |
| Threaded and Modular Port Connection Options | Modular port connection allows modular connection to Air Entry System (Lockout Valve, FRLs)                                                                                                                                                                                                                                          |
| SISTEMA Library                              | Available for download                                                                                                                                                                                                                                                                                                               |

*These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM® Series D double valves for mechanical power press applications.*

## STANDARD SPECIFICATIONS

|                                           |                              |                                                                                                                                                                                     |                                                    |                           |                                   |
|-------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------|-----------------------------------|
| GENERAL                                   | Function                     |                                                                                                                                                                                     | 3/2 Valve                                          | Normally Closed           |                                   |
|                                           | Construction Design          |                                                                                                                                                                                     | Single Poppet                                      |                           |                                   |
|                                           | Actuation                    |                                                                                                                                                                                     | Electrical                                         | Solenoid Pilot Controlled |                                   |
|                                           | Mounting                     | Type                                                                                                                                                                                | Valve Body Size                                    | 1/2                       | Inline/Modular                    |
|                                           |                              | Orientation                                                                                                                                                                         |                                                    | 1                         | Inline                            |
|                                           | Connection                   |                                                                                                                                                                                     | Threaded Port                                      | NPT                       |                                   |
|                                           |                              |                                                                                                                                                                                     |                                                    | G                         |                                   |
| Monitoring                                |                              | Dynamic, cyclical, external with customer supplied equipment. Monitoring should check state of the valve pressure sensor with any and all changes in state of valve control signal. |                                                    |                           |                                   |
| Minimum Operation Frequency               |                              | Once per month, to ensure proper function                                                                                                                                           |                                                    |                           |                                   |
| OPERATING CONDITIONS                      | Temperature                  | Ambient                                                                                                                                                                             | 40° to 120°F (4° to 50°C)                          |                           |                                   |
|                                           |                              | Media                                                                                                                                                                               | 40° to 175°F (4° to 80°C)                          |                           |                                   |
|                                           | Flow Media                   |                                                                                                                                                                                     | Compressed air according to ISO 8573-1 Class 7:4:4 |                           |                                   |
|                                           | Operating Pressure           |                                                                                                                                                                                     | Valve Body Size                                    | 1/2                       | 30 to 150 psig (2 to 10.3 bar)    |
|                                           |                              |                                                                                                                                                                                     |                                                    | 1                         | 36 to 150 psig (2.5 to 10.3 bar)  |
| Pressure Sensor                           |                              | PNP solid state, M12                                                                                                                                                                |                                                    |                           |                                   |
|                                           |                              | Current Consumption                                                                                                                                                                 | <4mA                                               |                           |                                   |
| ELECTRICAL DATA                           | Solenoid                     | Current Flow                                                                                                                                                                        | Operating Voltage                                  | Valve Body Size           | Power Consumption (each solenoid) |
|                                           |                              | DC                                                                                                                                                                                  | 24 volts                                           | 1/2                       | 1.5 watts                         |
|                                           |                              |                                                                                                                                                                                     |                                                    | 1                         | 15 watts                          |
|                                           |                              | Rated for continuous duty                                                                                                                                                           |                                                    |                           |                                   |
|                                           | Design according to VDE 0580 |                                                                                                                                                                                     |                                                    |                           |                                   |
|                                           | Enclosure Rating             |                                                                                                                                                                                     | IP 65                                              |                           |                                   |
|                                           | Electrical Connection        | Valve Body Size                                                                                                                                                                     | 1/2                                                | DIN EN 175301-803         | Form C                            |
|                                           |                              |                                                                                                                                                                                     |                                                    | M12                       |                                   |
|                                           |                              |                                                                                                                                                                                     | 1                                                  | DIN EN 175301-803         | Form A                            |
| M12                                       |                              |                                                                                                                                                                                     |                                                    |                           |                                   |
| Pressure Switch (Status Indicator) Rating |                              | Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC                                                                                                                         |                                                    |                           |                                   |
| CONSTRUCTION MATERIAL                     | Valve Body                   |                                                                                                                                                                                     | Cast Aluminum                                      |                           |                                   |
|                                           | Poppet                       |                                                                                                                                                                                     | Acetal and Stainless Steel                         |                           |                                   |
|                                           | Seals                        |                                                                                                                                                                                     | Buna-N                                             |                           |                                   |
| SAFETY DATA                               | Functional Safety Data       |                                                                                                                                                                                     | Category                                           | MDC 1 Series              | CAT 1, PL c                       |
|                                           |                              |                                                                                                                                                                                     |                                                    | MDC 2 Series              | CAT 2, PL c                       |
|                                           |                              |                                                                                                                                                                                     | B <sub>10D</sub>                                   | 5,000,000                 |                                   |
|                                           |                              |                                                                                                                                                                                     | PFH <sub>0</sub>                                   | pending                   |                                   |
|                                           |                              |                                                                                                                                                                                     | MTTF <sub>0</sub>                                  | pending                   |                                   |

**IMPORTANT NOTE:** Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.

## PRODUCT CREDENTIALS

|                                                          |                                                            |                     |                                          |                                          |
|----------------------------------------------------------|------------------------------------------------------------|---------------------|------------------------------------------|------------------------------------------|
| <b>Performance Level</b><br>Per ISO 13849-1:2015<br><br> | <b>Safety Integrity Level</b><br>Per IEC 2061:2001<br><br> | <b>DGUV</b><br><br> | <b>Declaration of Conformity</b><br><br> | <b>Certificate of Compliance</b><br><br> |
|----------------------------------------------------------|------------------------------------------------------------|---------------------|------------------------------------------|------------------------------------------|

# Ordering Information

## MODEL NUMBER CONFIGURATOR

## 3-Way 2-Position Valves

|                                  |                  |                  |                |            |          |          |          |          |          |          |          |          |
|----------------------------------|------------------|------------------|----------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>Series</b>                    |                  | <b>MDC</b>       | <b>1</b>       | <b>E13</b> | <b>1</b> | <b>N</b> | <b>A</b> | <b>E</b> | <b>X</b> | <b>C</b> | <b>G</b> | <b>A</b> |
| <b>Feedback Signal</b>           |                  |                  |                |            |          |          |          |          |          |          |          |          |
| Without Pressure Sensor          |                  | <b>1</b>         |                |            |          |          |          |          |          |          |          |          |
| With Solid State Pressure Sensor |                  | <b>2</b>         |                |            |          |          |          |          |          |          |          |          |
| <b>Soft-Start</b>                | <b>Body Size</b> | <b>Port Size</b> |                |            |          |          |          |          |          |          |          |          |
|                                  |                  | <b>In-Out</b>    | <b>Exhaust</b> |            |          |          |          |          |          |          |          |          |
| With                             | 1/2              | 3/8              | 3/4            | <b>E13</b> |          |          |          |          |          |          |          |          |
|                                  |                  | 1/2              | 3/4            | <b>E14</b> |          |          |          |          |          |          |          |          |
|                                  |                  | 3/4              | 3/4            | <b>E15</b> |          |          |          |          |          |          |          |          |
| Without                          | 1                | 3/4              | 1-1/2          | <b>X25</b> |          |          |          |          |          |          |          |          |
|                                  |                  | 1                | 1-1/2          | <b>X26</b> |          |          |          |          |          |          |          |          |
|                                  |                  | 1-1/4            | 1-1/2          | <b>X27</b> |          |          |          |          |          |          |          |          |
| <b>Exhaust Silencer</b>          |                  |                  |                |            |          |          |          |          |          |          |          |          |
| With Silencer                    |                  | <b>1</b>         |                |            |          |          |          |          |          |          |          |          |
| Without Silencer                 |                  | <b>X</b>         |                |            |          |          |          |          |          |          |          |          |
| <b>Port Thread</b>               |                  |                  |                |            |          |          |          |          |          |          |          |          |
| NPT                              |                  | <b>N</b>         |                |            |          |          |          |          |          |          |          |          |
| G                                |                  | <b>G</b>         |                |            |          |          |          |          |          |          |          |          |
| <b>Revision Level</b>            |                  |                  |                |            |          |          |          |          |          |          |          |          |
| <b>Pressure Measuring Device</b> |                  |                  |                |            |          |          |          |          |          |          |          |          |
| With Analog Gauge                |                  | <b>G</b>         |                |            |          |          |          |          |          |          |          |          |
| Digital Transducer               |                  | <b>T</b>         |                |            |          |          |          |          |          |          |          |          |
| None                             |                  | <b>X</b>         |                |            |          |          |          |          |          |          |          |          |
| <b>Solenoid Connection</b>       |                  |                  |                |            |          |          |          |          |          |          |          |          |
| DIN EN 175301-803                |                  | <b>C</b>         |                |            |          |          |          |          |          |          |          |          |
| M12                              |                  | <b>M</b>         |                |            |          |          |          |          |          |          |          |          |
| <b>Communication</b>             |                  |                  |                |            |          |          |          |          |          |          |          |          |
| None                             |                  |                  |                |            |          |          |          |          |          |          |          |          |
| <b>Monitoring</b>                |                  |                  |                |            |          |          |          |          |          |          |          |          |
| External                         |                  |                  |                |            |          |          |          |          |          |          |          |          |
| <b>Voltage</b>                   |                  |                  |                |            |          |          |          |          |          |          |          |          |
| 24 V DC                          |                  |                  |                |            |          |          |          |          |          |          |          |          |

Model Number examples: MDC1E131NAEXCGA, MDC2E1351GAEXMTA.

| Basic Size | Port Size | Flow *<br>C <sub>v</sub> (NI/m) |            | Valve with Silencer, Pressure Sensor and Analog Gauge |
|------------|-----------|---------------------------------|------------|-------------------------------------------------------|
|            |           | 1-2                             | 2-3        | Weight<br>≈ lb (kg)                                   |
| 1/2        | 3/8       | 3.1 (3100)                      | 3.3 (3200) | 2.05 (0.93)                                           |
|            | 1/2       | 3.7 (3600)                      | 4.0 (3900) |                                                       |
|            | 3/4       | 4.0 (3900)                      | 4.2 (4100) |                                                       |
| 1          | 3/4       | 14 (14000)                      | 19 (19000) | 9.35 (4.24)                                           |
|            | 1         | 21 (21000)                      | 27 (29000) |                                                       |
|            | 1-1/4     | 23 (23000)                      | 30 (30000) |                                                       |

\* Flow test conducted without silencer at the exhaust port.

## Valve Schematics

| Valve with EEZ-ON® (Soft-Start) |                         | Valve without EEZ-ON® (Soft-Start) |                         |
|---------------------------------|-------------------------|------------------------------------|-------------------------|
| With Pressure Sensor            | Without Pressure Sensor | With Pressure Sensor               | Without Pressure Sensor |
|                                 |                         |                                    |                         |

| Solenoid & Pressure Sensor Pinouts |                                                                                                                                                     |                                                     |                                      |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------|
|                                    | DIN EN 175301-803 Form A                                                                                                                            | DIN EN 175301-803 Form C                            | M12                                  |
| Solenoid                           | <p>1 - Positive<br/>2 - Negative<br/>4 - Ground</p>                                                                                                 | <p>1 - Positive<br/>2 - Negative<br/>3 - Ground</p> | <p>3 - Positive<br/>4 - Negative</p> |
| Pressure Sensor                    | <p><b>M12 – Solid State Pressure Sensor</b></p> <p>1, 2, 3, 4 - Pin<br/>PNP - Switched Positive<br/>NO - Normally Open<br/>NC - Normally Closed</p> |                                                     |                                      |

## Digital Pressure Transducer – Technical Data

| Digital Pressure Transducer Specifications                                                                           |                         |                       |                         |                     |
|----------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------|-------------------------|---------------------|
| Pressure Range<br>psig (bar)                                                                                         | Electrical Output       | Electrical Connection | Pressure Port Size/Type | Weight<br>≈ lb (kg) |
| 0 (0) to 145 (10)                                                                                                    | (1) PNP with (1) 4-20ma | M8, 4 Pin             | 1/8 Male                | 0.099 (0.045)       |
| Sensor Pinout with Analog Output                                                                                     |                         |                       |                         |                     |
| <p>1 - Brown - 24 VDC<br/>2 - White - 4 to 20mA<br/>3 - Blue - 0 VDC<br/>4 - Black - PNP Open Collector Output 1</p> |                         |                       |                         |                     |

## Safety Solution Options

### Safe Air Entry System Assemblies with MDC Series Valves

Air Entry System Assemblies with manual Lockout L-O-X® valve, air preparation FRL combinations, MDC Series Safe Valve with Soft-Start are available.

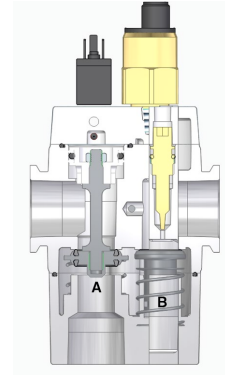


For information please visit [www.rosscontrols.com](http://www.rosscontrols.com).

# Valve Operation

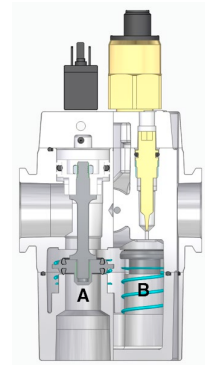
## Valve De-actuated (ready-to-run) Pilot Air at Piston A

**Pilot De-energized** – Piston A is exhausted through the exhaust port of the pilot valve. The main exhaust port on piston A is going to open and the air above piston B and the air at the outlet port is exhausted through the exhaust of piston A.



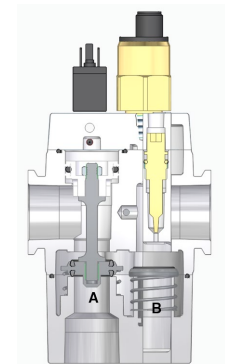
## Valve Actuated

**Pilot Energized** – Pilot air forces piston A downward to close the exhaust port. Air flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston B.

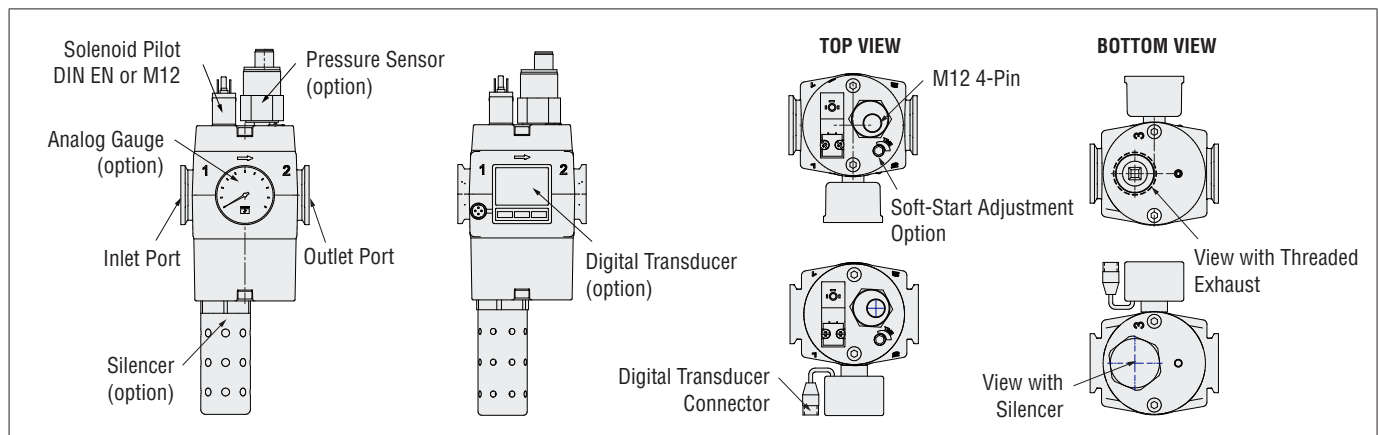


## Valve Actuated Full Pressure

When the pressure on piston B reaches approximately 50 percent of inlet pressure, it is forced downward. Full inlet pressure now flows freely to the outlet port.



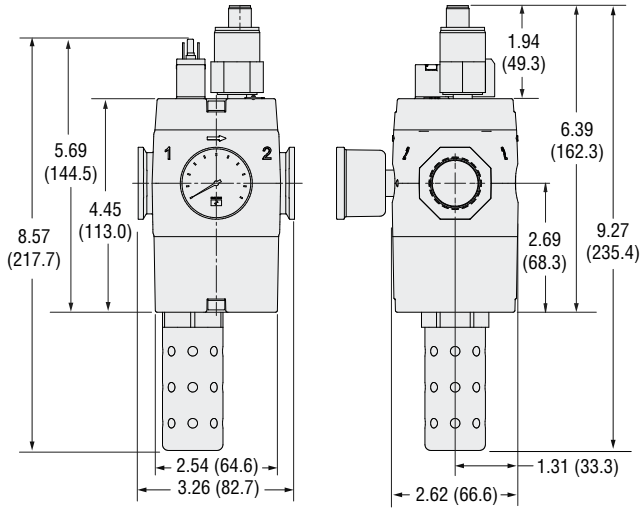
Normal operation requires energizing the solenoid for switching the MDC Series valve ON, and de-energizing the solenoid for switching the MDC Series valve OFF.



## DIMENSIONS

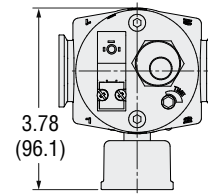
Inches (mm)

### Body Size 1/2

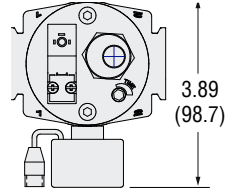


#### Top View

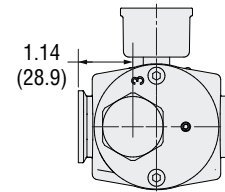
##### With Analog Gauge



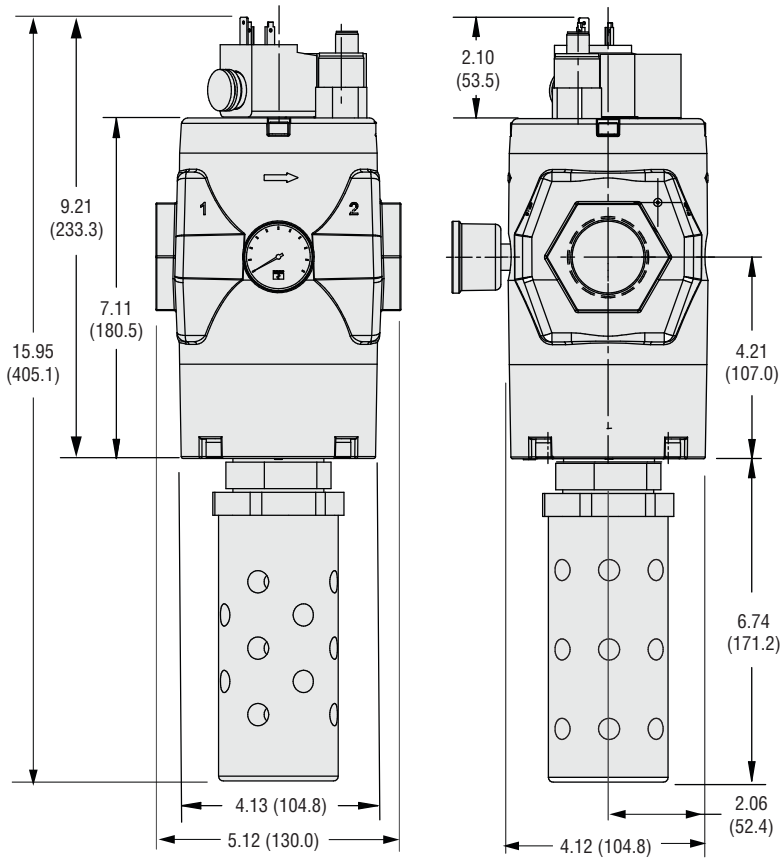
##### With Digital Transducer



#### Bottom View

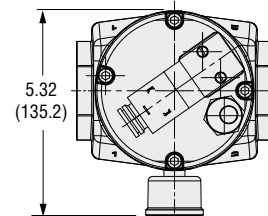


### Body Size 1

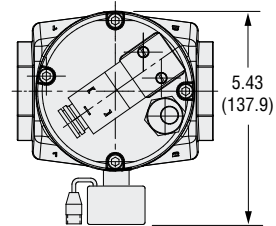


#### Top View

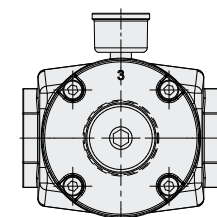
##### With Analog Gauge



##### With Digital Transducer



#### Bottom View



Downloadable CAD models available.

PRESSURE GAUGE



Illustration example.

| Analog Pressure Gauge | Mounting    | Port Size | Thread Type | Model Number | Pressure Range<br>psig (bar) | Case Diameter<br>inches (mm) |
|-----------------------|-------------|-----------|-------------|--------------|------------------------------|------------------------------|
|                       | Center Back | 1/4       | NPT – Male  | 5400A2022    | 0-150 (0-10)                 | 2.2 (55)                     |
|                       |             |           | G – Male    | D5400A2022   | 0-200 (0-14)                 |                              |

PRESSURE TRANSDUCERS



Illustration example.

| Digital Pressure Transducers | Monitoring Type                                                                      | Electrical Connection | Electrical Output          | Model Number |          | Pressure Port Size | Pressure Range<br>psig (bar) | Weight<br>lb (kg) |
|------------------------------|--------------------------------------------------------------------------------------|-----------------------|----------------------------|--------------|----------|--------------------|------------------------------|-------------------|
|                              |                                                                                      |                       |                            | NPT Thread   | G Thread |                    |                              |                   |
|                              | Electrical                                                                           | M8, 4 Pin             | (1) PNP with<br>(1) 4-20ma | 760B94       | D760B94  | 1/8                | 0 to 145 (0 to 10)           | 0.099 (0.045)     |
|                              | For Digital Pressure Readout, Analog 4-20mA Output, and Transistor Switching Output. |                       |                            |              |          |                    |                              |                   |

| Pinout                           |                                                                                                            |
|----------------------------------|------------------------------------------------------------------------------------------------------------|
| Sensor Pinout with Analog Output |                                                                                                            |
|                                  | 1 - Brown - 24 VDC<br>2 - White - 4 to 20mA<br>3 - Blue - 0 VDC<br>4 - Black - PNP Open Collector Output 1 |

ENERGY RELEASE VERIFICATION



Illustration example.

| Pressure Switch | Verification Type | Installation Location | Connector Type              | Model Number | Port Thread | Factory Preset<br>psi (bar) |
|-----------------|-------------------|-----------------------|-----------------------------|--------------|-------------|-----------------------------|
|                 | Electrical        | Downstream            | DIN EN 175301-803<br>Form A | 586A86       | 1/8 NPT     | 5 (0.3) falling             |

ELECTRICAL STATUS INDICATION



Illustration example.

| Pressure Sensor | Indicator Type              | Connector Type | Model Number | Port Thread | Factory Preset<br>psi (bar) |
|-----------------|-----------------------------|----------------|--------------|-------------|-----------------------------|
|                 | Solid State Pressure Sensor | M12            | 1335B30W     | M10x1       | 17 (1.2) falling            |

| Pinouts                                                                                   |                                                                                                                                              |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| DIN EN 175301-803 Form A                                                                  | M12 – Solid State Pressure Sensor                                                                                                            |
| <p>1 - Common<br/>2 - Normally Closed<br/>3 - Normally Open<br/>4 - Ground (Not Used)</p> | <p>1 - 8-30 VDC<br/>2 - Output<br/>3 - Ground<br/>4 - Output<br/>PNP – Switched Positive<br/>NO – Normally Open<br/>NC – Normally Closed</p> |



Accessories

PREWIRED ELECTRICAL CONNECTORS

| DIN EN 175301-803                                                                 | M12                                                                                |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|  |  |

Illustration examples.

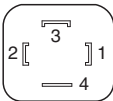
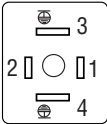
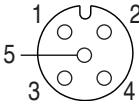
| Prewired Connectors | Cable                    |              |            |                   |                      |                  | Model Number  |                   |
|---------------------|--------------------------|--------------|------------|-------------------|----------------------|------------------|---------------|-------------------|
|                     | End 1                    | End 2        | Connection | Quantity Included | Length meters (feet) | Cord Diameter mm | Without Light | Lighted Connector |
|                     | Connector                | Cord         |            |                   |                      |                  |               | 24 V DC           |
|                     | DIN EN 175301-803 Form A | Flying leads | Solenoid   | 1                 | 2 (6.5)              | 6                | 721K77        | 720K77-W          |
|                     |                          |              |            | 1                 | 2 (6.5)              | 10               | 371K77        | 383K77-W          |
|                     | DIN EN 175301-803 Form C | Flying leads | Solenoid   | 1                 | 3 (10)               | 8                | 2449K77       | 2450K77-W         |
|                     | M12 5-pin, Female        | Flying leads | Solenoid   | 1                 | 5 (16.4)             | –                | 2241H77       | –                 |
|                     |                          |              |            | 1                 | 10 (32.8)            | –                | 2242H77       | –                 |

ELECTRICAL CONNECTORS

| Cable Grip                                                                          |                                                                                       |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Without Light                                                                       | With Light                                                                            |
|  |  |

Illustration examples.

| Connectors | Connector                |            |                    |                   |                  | Model Number  |                   |
|------------|--------------------------|------------|--------------------|-------------------|------------------|---------------|-------------------|
|            | Type                     | Connection | Fitting Connection | Quantity Included | Cord Diameter mm | Without Light | Lighted Connector |
|            | DIN EN 175301-803 Form A | Solenoid   | Cable grip         | 1                 | 8 to 10          |               | 936K87-W          |
|            |                          |            | 1/2" NPT conduit   | 1                 | –                | 723K77        | 724K77-W          |
|            | DIN EN 175301-803 Form C | Solenoid   | 1/2" NPT conduit   | 1                 | –                | 2452K77       | 2453K77-W         |

| Connector Pinouts                                                                                                                                |                                                                                                                                                                               |                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| DIN EN 175301-803 Form A                                                                                                                         | DIN EN 175301-803 Form C                                                                                                                                                      | M12                                                                                                                 |
|  <p>1 - Black<br/>2 - Black<br/>4 - Green/Yellow (Ground)</p> |  <p>1 - Brown<br/>2 - Blue<br/>3 - Green/Yellow (Ground)<br/>4 - Green/Yellow (Ground)</p> |  <p>3 - Blue<br/>4 - Black</p> |

\* Lights in connectors with a translucent housing can be used as indicator lights to show when solenoids are energized.

## EXHAUST SILENCERS



Illustration example.

| Silencers | SPECIFICATIONS |             | Silencer Material      |              | Pressure Range<br>psig (bar) |                           | Schematic                                                                           |                     |
|-----------|----------------|-------------|------------------------|--------------|------------------------------|---------------------------|-------------------------------------------------------------------------------------|---------------------|
|           |                |             | Aluminum               |              | 0-290 (0-20) maximum         |                           |  |                     |
|           | Port Size      | Thread Type | Flow<br>$C_v$ (NI/min) | Model Number |                              | Dimensions<br>inches (mm) |                                                                                     | Weight<br>≈ lb (kg) |
|           |                |             |                        | NPT Thread   | R/Rp Thread                  | Length                    | Hex Size (D)                                                                        |                     |
|           | 3/4            | Male        | 15 (15000)             | 5500A5003    | D5500A5003                   | 5.3 (14)                  | 2.0 (51)                                                                            | 0.9 (0.4)           |
|           | 1-1/2          | Female      | 39 (38000)             | 5500A8001    | D5500A8001                   | 5.7 (14)                  | 2.5 (64)                                                                            | 1.3 (0.6)           |

## FEMALE SILENCER CONNECTORS

| Hex Nipples | Material | Fitting Pipe Size | Thread Type | Model Number |             |  |
|-------------|----------|-------------------|-------------|--------------|-------------|--------------------------------------------------------------------------------------|
|             |          |                   |             | NPT Thread   | BSPT Thread |                                                                                      |
|             | Steel    | 1-1/2             | Male - Male | 488J27       | 122J39      |                                                                                      |

# Accessories

## MODULAR CONNECTION

MDC Series valves have both modular receptacles for piping and female threaded ports inside receptacles, which allows either modular connection or direct piping. Mounting accessories listed below are used for modular connection to ROSS MD Series filter-regulator units.

| Clamp                                                                             |                                                                                   | Bracket, Screw, and Clamp                                                           |                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |                                                                                   |  |                                                                                     |
| Extra Port Blocks                                                                 | Female End Ports                                                                  |                                                                                     | Male End Ports                                                                      |
|  |  |                                                                                     |  |

Illustration examples.

| Mounting Brackets & Clamp<br>for Module Connections | Options                   |           | Model Number |               |
|-----------------------------------------------------|---------------------------|-----------|--------------|---------------|
|                                                     | Clamp only                |           | R-A118-105   |               |
|                                                     | Bracket, Screw, and Clamp |           | R-A118-105M  |               |
| Port Block and End Ports                            | Options                   | Port Size | Model Number |               |
|                                                     |                           |           | NPTF Thread  | G Thread      |
|                                                     | Extra Port Blocks         | 1/2       | R-118-106-4  | R-118-106-4W  |
|                                                     | Female End Ports          | 1/2       | R-118-100-4  | R-118-100-4W  |
|                                                     |                           | 3/4       | R-118-100-6  | R-118-100-6W  |
|                                                     | Male End Ports            | 1/2       | R-118-109-4F | R-118-109-4FW |
|                                                     |                           | 3/4       | R-118-109-6F | R-118-109-6FW |





# CAUTIONS, WARNINGS And STANDARD WARRANTY



ROSS OPERATING VALVE, ROSS CONTROLS®, ROSS DECCO®, and AUTOMATIC VALVE INDUSTRIAL, collectively the “ROSS Group”.

## PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure all sources of energy are turned off, the entire pneumatic system is shut down and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).
2. All ROSS Group Products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any product can be tampered with and/or need servicing after installation, persons responsible for the safety of others or the care of equipment must check ROSS Group Products on a regular basis and perform all necessary maintenance to ensure safe operating conditions.
3. All applicable instructions should be read and complied with before using any fluid power system to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use. If you have any questions, call your nearest ROSS Group location.
4. Each ROSS Group Product should be used within its specification limits. In addition, use only ROSS Group components to repair ROSS Group Products.

### WARNINGS:

**Failure to follow these instructions can result in personal injury and/or property damage.**

## FILTRATION and LUBRICATION

1. Dirt, scale, moisture, etc., are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment. The ROSS Group recommends a filter with a 5-micron rating for normal applications.
2. All standard ROSS Group filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition and hazardous leakage. Immediately replace crazed, cracked, or deteriorated bowls.
3. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum base oils with oxidation inhibitors, an aniline point between 180°F (82°C) and 220°F (104°C), and an ISO 32, or lighter, viscosity. Avoid oils with

phosphate type additives which can harm polyurethane components, potentially leading to valve failure which risks personal injury, and/or damage to property.

### WARNINGS:

**Failure to follow these instructions can result in personal injury and/or property damage.**

## AVOID INTAKE/EXHAUST RESTRICTION

1. Do not restrict air flow in the supply line. To do so could reduce the pressure of the supply air below minimum requirements for the valve and thereby causing erratic action.
2. Do not restrict a valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and must have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure.

**WARNINGS: Failure to follow these instructions can result in personal injury and/or property damage.**

## SAFETY APPLICATIONS

1. Mechanical Power Presses and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
2. Safe Exhaust (dump) valves without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All Safe Exhaust valve installations should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
3. Per specifications and regulations, the ROSS L-O-X® and L-O-X® with EEZ-ON®, N06 and N16 Series operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

### WARNINGS:

**Failure to follow these instructions can result in personal injury and/or property damage.**

## STANDARD WARRANTY

All products sold by the ROSS Group are warranted for a one-year period [with the exception of Filters, Regulators and Lubricators (“FRLs”) which are warranted for a period of seven (7) years] from the date of purchase. All products are, during their respective warranty periods, warranted to be free of defects in material and workmanship. The ROSS Group's obligation under this warranty is limited to repair, replacement or refund of the purchase price paid for products which the ROSS Group has determined, in its sole discretion, are defective. All warranties become void if a product has been subject to misuse, misapplication, improper maintenance, modification or tampering. Products for which warranty protection is sought must be returned to the ROSS Group freight prepaid.

THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND THE ROSS GROUP EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE ROSS GROUP MAKES NO WARRANTY WITH RESPECT TO ITS PRODUCTS MEETING THE PROVISIONS OF ANY GOVERNMENTAL OCCUPATIONAL SAFETY AND/OR HEALTH LAWS OR REGULATIONS. IN NO EVENT IS THE ROSS GROUP LIABLE TO PURCHASER, USER, THEIR EMPLOYEES OR OTHERS FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM A BREACH OF THE WARRANTY DESCRIBED ABOVE OR THE USE OR MISUSE OF THE PRODUCTS. NO STATEMENT OF ANY REPRESENTATIVE OR EMPLOYEE OF THE ROSS GROUP MAY EXTEND THE LIABILITY OF THE ROSS GROUP AS SET FORTH HEREIN.



GLOBAL LOCATIONS

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|-------------------------------------------------------------------------------------|----------------|----------------|----------------------------|---------------------------|--------------------------------------------------------------------------|
|  | AMERICAS       | USA            | <b>ROSS CONTROLS</b>       | Tel: +1-248-764-1800      | <a href="http://www.rosscontrols.com">www.rosscontrols.com</a>           |
|                                                                                     |                | Canada         | <b>ROSS CANADA</b>         | Tel: +1-416-251-7677      | <a href="http://www.rosscanada.com">www.rosscanada.com</a>               |
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|                                                                                     | EUROPE         | Germany        | <b>ROSS EUROPA</b>         | Tel: +49 (0)6103-7597-100 | <a href="http://www.rosseuropa.com">www.rosseuropa.com</a>               |
|                                                                                     |                | France         | <b>ROSS FRANCE</b>         | Tel: +33(0)1-49-45-65-65  | <a href="http://www.rossfrance.com">www.rossfrance.com</a>               |
|                                                                                     |                | United Kingdom | <b>ROSS UK</b>             | Tel: +44 (0)1254 872277   | <a href="http://www.rossuk.co.uk">www.rossuk.co.uk</a>                   |
|                                                                                     | ASIA & PACIFIC | India          | <b>ROSS CONTROLS INDIA</b> | Tel: +91-44-2624-9040     | <a href="http://www.rosscontrolsindia.com">www.rosscontrolsindia.com</a> |
|                                                                                     |                | China          | <b>ROSS CONTROLS CHINA</b> | Tel: +86-21-6915-7961     | <a href="http://www.rosscontrolschina.com">www.rosscontrolschina.com</a> |
|                                                                                     |                | Japan          | <b>ROSS ASIA</b>           | Tel: +81-42-778-7251      | <a href="http://www.rossasia.co.jp">www.rossasia.co.jp</a>               |



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