



# MANUAL PALM & PUSHBUTTON VALVES

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## PRODUCT CATALOG

# Palm Button & Pushbutton Valves

## Product Overview

### Mechanical Valves Function

ROSS mechanical valves are especially suited to serve as remote pilots to pass operating signals to other pressure actuated valves. Valves are widely used in automation for harnessing a mechanical action automatically to open or close and air circuit.





| Heavy-Duty Valves   |   | Medium-Duty Valves   |   |
|---|---|--|---|
| Palm Button   |   | Flush Pushbutton   | Mushroom Pushbutton   |
|  |  |  |  |

Illustration examples.

### VALVE FEATURES

|                       |  |
|-----------------------|--|
| Design                | Reliable poppet or spool and sleeve construction |
| Heavy Duty            | Provides quiet operation                         |
| Dual Mounting Flanges | Offer flexible and easy installation options     |
| Rugged Construction   | Made with corrosion-resistant materials          |

| STANDARD SPECIFICATIONS  |                     |                              |  |                              |  |
|--|---------------------|------------------------------|--|------------------------------|--|
| GENERAL  | Function            | 2/2 Valves                   | Normally Closed  |                              |  |
|  |                     | 3/2 Valves                   |  |                              |  |
|  | Construction Design | Heavy-Duty Valves            | Poppet   |                              |  |
|  |                     | Medium-Duty Valves           | Spool & Sleeve   |                              |  |
|  | Actuation           | Pneumatic                    | Manual   |                              |  |
|  | Mounting            | Heavy-Duty Valves            | Side and bottom mounting   |                              |  |
|  |                     |                              | Bottom   |                              |  |
|  | Medium-Duty Valves  | Inline                       |  |                              |  |
|  |                     | Connection                   | Threaded Port  | NPT                          |  |
| G  |                     |                              |  |                              |  |
| OPERATING CONDITIONS   | Temperature         | Heavy-Duty Valves            | Ambient  | -10° to 175°F (-23° to 80°C) |  |
|  |                     |                              | Media  |                              |  |
|  |                     |                              | For temperatures below -10° F (-23° C), consult ROSS.  |                              |  |
|  |                     | Medium-Duty Valves           | Ambient  | 40° to 175°F (4° to 80°C)    |  |
|  |                     |                              | Media  |                              |  |
|  |                     |                              | For temperatures below 40° F (4° C) air must be free of water vapor to prevent formation of ice. |                              |  |
|  | Flow Media          | Filtered air                 |  |                              |  |
|  | Operating Pressure  | 5 to 150 psi (0.3 to 10 bar) |  |                              |  |
|  | Operating Distance  | Medium-Duty Valves           | Valid  | 0.22 inches (5.5 mm)         |  |
|  |                     |                              | Invalid  | 0.04 inches (1.0 mm)         |  |
| Pressure for Valid/Invalid Operation   | Medium-Duty Valves  | 7.7 lb (3.5 Kg)              |  |                              |  |
| CONSTRUCTION MATERIAL  | Valve Body          | Heavy-Duty Valves            | Cast Aluminum  |                              |  |
|  |                     | Medium-Duty Valves           |  |                              |  |
|  | Button              | Heavy-Duty Valves            | Aluminum, High-Strength Polymer  |                              |  |
|  |                     | Medium-Duty Valves           | Polyoxymethylene   |                              |  |
|  | Seals               | Heavy-Duty Valves            | Buna-N   |                              |  |
|  |                     | Medium-Duty Valves           | Nitrile Rubber   |                              |  |
| IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover. |                     |                              |  |                              |  |

| PRODUCT CREDENTIALS                                 |
|---|
| <p>EAC Conformity Declaration</p> <p><b>EAC</b></p> |

# Ordering Information

## 2/2 Heavy Duty Palm Button Valves

PALM BUTTON VALVES2-Way 2-Position Valves

| Button Material       | Button Color | Valve Mounting Type | Port Size | Valve Model Number |            |
|-----------------------|--------------|---------------------|-----------|--------------------|------------|
|                       |              |                     |           | NPT Thread         | G Thread   |
| Aluminum              | Silver       | Side and Bottom     | 1/4       | 1121A2001          | D1121A2001 |
| High-Strength Polymer | Green Button | Bottom              | 1/4       | 1221B2001          | D1221B2001 |
|                       | Red Button   | Bottom              | 1/4       | 1221B2003          | D1221B2003 |

| Valve Mounting Type | Port Size | Flow<br>C <sub>v</sub> (NI/min) | Average Response Constants* | Weight<br>≈ lb (kg) |
|---------------------|-----------|---------------------------------|-----------------------------|---------------------|
|                     |           |                                 | F                           |                     |
|                     |           |                                 | 1-2                         |                     |
| Side and Bottom     | 1/4       | 0.5 (490)                       | 2.5                         | 1.0 (0.5)           |
| Bottom              | 1/4       | 0.8 (790)                       | 2.0                         | 1.8 (0.8)           |

\*Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

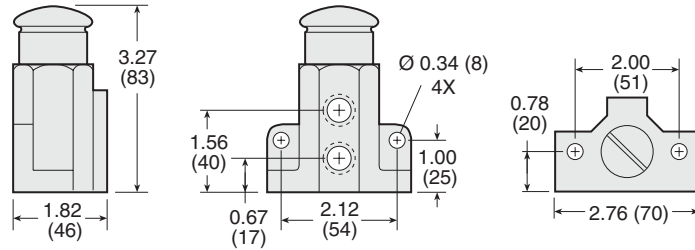
Valve Schematic

## 2/2 Heavy Duty Palm Button Valves

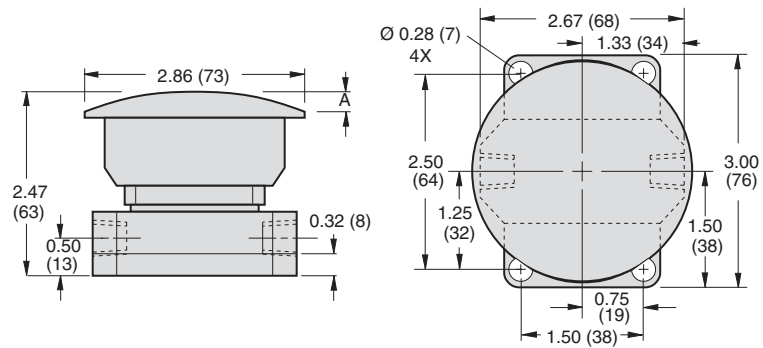
### DIMENSIONS

Inches (mm)

#### 11 Series Valves



#### 12 Series Valves



A = Travel 0.18 (0.5)

Downloadable CAD models available.

# Ordering Information

## 3/2 Heavy Duty Palm Button Valves

PALM BUTTON VALVES2-Way 2-Position Valves

| Button Material       | Button Color | Mounting Type   | Port Size | Valve Model Number |            |
|-----------------------|--------------|-----------------|-----------|--------------------|------------|
|                       |              |                 |           | NPT Thread         | G Thread   |
| Aluminum              | Silver       | Side and Bottom | 1/4       | 1123A2001          | D1123A2001 |
| High-Strength Polymer | Green Button | Bottom          | 1/4       | 1223B2001          | D1223B2001 |
|                       | Red Button   | Bottom          | 1/4       | 1223B2003          | D1223B2003 |

| Valve Series | Mounting Type   | Port Size | Flow<br>C <sub>V</sub> (l/min) | Average Response Constants* |     | Weight<br>≈ lb (kg) |
|--------------|-----------------|-----------|--------------------------------|-----------------------------|-----|---------------------|
|              |                 |           |                                | F                           |     |                     |
|              |                 |           |                                | 1-2                         | 3-2 |                     |
| 11           | Side and Bottom | 1/4       | 0.5 (490)                      | 2.5                         | 3.2 | 1.0 (0.5)           |
| 12           | Bottom          | 1/4       | 0.8 (790)                      | 2.0                         | 2.3 | 1.8 (0.8)           |

\*Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Schematic

Port 2 (Outlet)

Port 1 (Inlet)

Mounting Holes

Mounting Holes

Mounting Holes

Bottom View

Port 2 (Outlet)

Port 1 (Inlet)

Mounting Holes

Mounting Holes

Mounting Holes

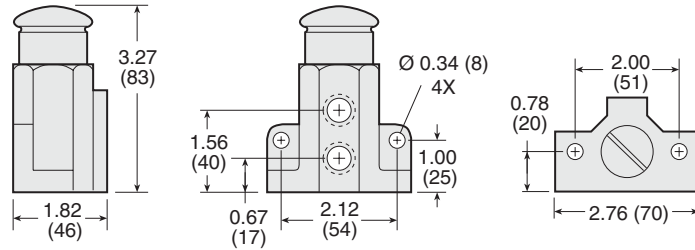
Top View

## 3/2 Heavy Duty Palm Button Valves

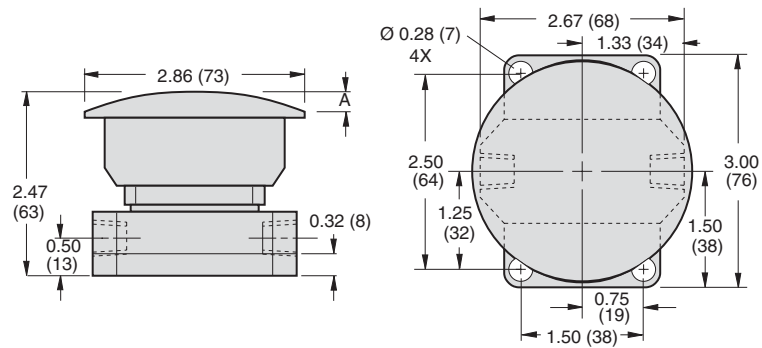
### DIMENSIONS

Inches (mm)

#### 11 Series Valves



#### 12 Series Valves



A = Travel 0.18 (0.5)

Downloadable CAD models available.

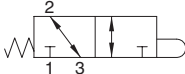
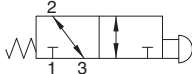
# Ordering Information

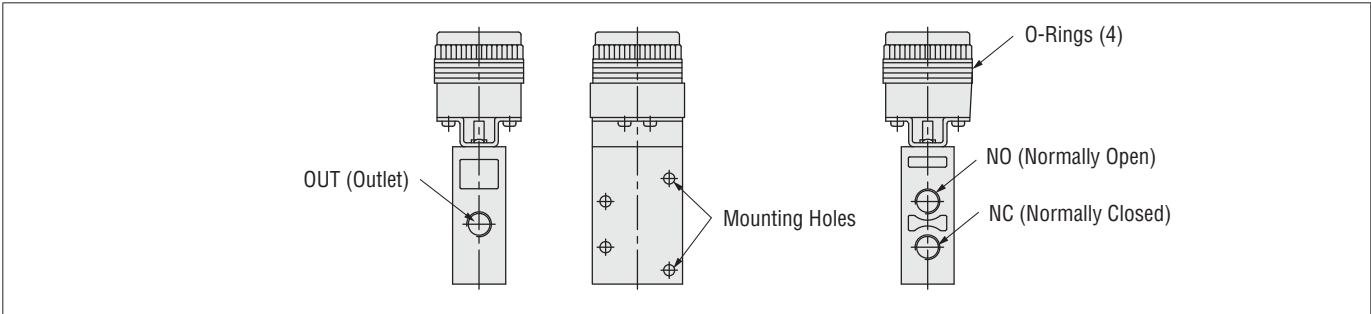
## 3/2 Medium Duty Pushbutton Valves

PUSHBUTTON VALVES3-Way 2-Position Valves

| Actuator Style  | Port Size | Button Color | Valve Model Number |            |
|-----------------|-----------|--------------|--------------------|------------|
|                 |           |              | NPT Thread         | G Thread   |
| Flush Button    | 1/8       | Green Button | 1223B1FPG          | D1223B1FPG |
|                 |           | Red Button   | 1223B1FPR          | D1223B1FPR |
|                 | 1/4       | Green Button | 1223B2FPG          | D1223B2FPG |
|                 |           | Red Button   | 1223B2FPR          | D1223B2FPR |
| Mushroom Button | 1/8       | Green Button | 1223B1MBG          | D1223B1MBG |
|                 |           | Red Button   | 1223B1MBR          | D1223B1MBR |
|                 | 1/4       | Green Button | 1223B2MBG          | D1223B2MBG |
|                 |           | Red Button   | 1223B2MBR          | D1223B2MBR |

| Button Type     | Port Size | Flow<br>C <sub>v</sub> (NI/min) | Weight<br>≈ lb (kg) |
|-----------------|-----------|---------------------------------|---------------------|
| Flush Button    | 1/8       | 0.6 (590)                       | 0.28 (0.13)         |
|                 | 1/4       | 0.9 (890)                       | 0.34 (0.15)         |
| Mushroom Button | 1/8       | 0.6 (590)                       | 0.29 (0.13)         |
|                 | 1/4       | 0.9 (890)                       | 0.35 (0.16)         |

| Valve Schematic   |   |
|---|---|
| Flush Button  | Mushroom Button   |
|  |  |



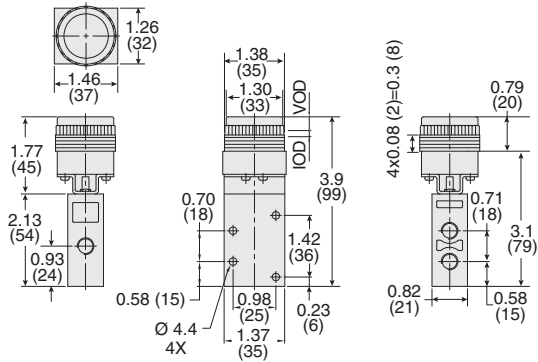


## 3/2 Medium Duty Button Valves

### DIMENSIONS

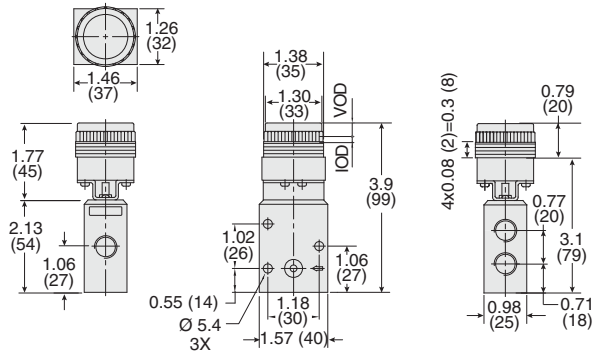
Inches (mm)

Port Size 1/8

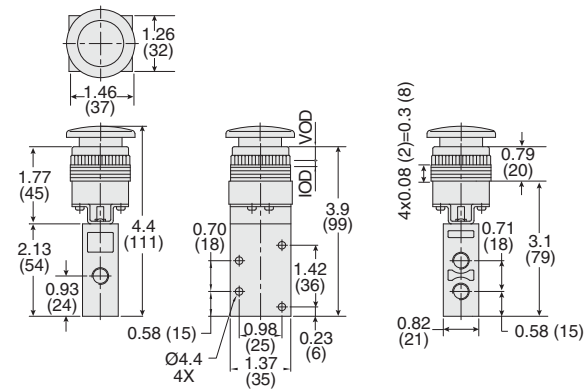


Flush Pushbutton

Port Size 1/4

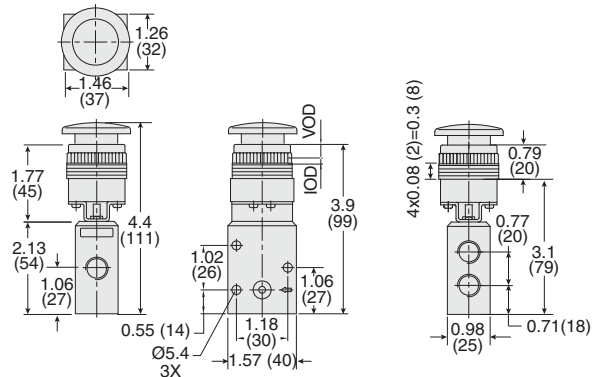


Port Size 1/8

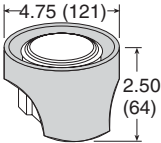


Mushroom Button

Port Size 1/4



Downloadable CAD models available.

| RING GUARD<br>for Heavy-Duty High-Strength Polymer Palm Button |   |  |
|--|---|--|
| Model Number   | Dimensions<br>Inches (mm)   | Features   |
| 278B30   |  | Helps to protect against accidental valve actuation. |

# 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

|   |                |                |                            |                           |  |
|---|----------------|----------------|----------------------------|---------------------------|--|
|  | 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>               |
|   |                | Brazil         | <b>ROSS BRASIL</b>         | Tel: +55-11-4335-2200     | <a href="http://www.rosscontrols.com.br">www.rosscontrols.com.br</a>     |
|   | 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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[www.masterpneumatic.com](http://www.masterpneumatic.com)



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