

# Nordson EFD Solutions:

## Meter Mix Valves for 2K Mix-and-Dispense Applications



Nordson EFD provides a complete line of 2K modular metal valves that can be easily disassembled and cleaned after mixing. Maintaining valves that handle reactive resins can be time-consuming and expensive — a plugged valve translates to lost production, and even a partially plugged mixer results in poor quality.

### Features and Benefits

- Eliminate solvent flushing
- Less adhesive waste
- Cleans up easily for increased productivity



Meter Mix Valves

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# Using a Meter Mix Valve

If you're using a meter mix valve, your system may include a valve, mixer, and accessories. Here are steps to help you select the best possible 2K meter mix system.

## Step 1: Select the Best Spiral Mixer for Your Material

See 2K Selection Guide, *Best Mixer for Your Material*. Keep in mind, when using a meter mix system, you must use spiral mixers. [www.nordsonefd.com/2KSelectionGuide](http://www.nordsonefd.com/2KSelectionGuide)

## Step 2: Select the Best Spiral Mixer for Your Material Viscosity

See 2K Selection Guide, *Best Mixer for Your Material Viscosity*. Material viscosity will help determine the type of spiral mixer you need.

## Step 3: Select Your Meter Mix Valve

Nordson EFD's meter mix valves are designed to bring the reactive adhesives and sealants into the static mixer and are engineered for easy disassembly and cleaning. Our pneumatic valves help increase productivity and eliminate the need for solvent flushing.



Series 400 and 400HF Autovalve



Series 450 Autovalve



Series 450RC Recirculating Valve



Series 450XT Snuff Back Valve

## Pneumatic Meter Mix Valve Series

Pneumatic meter mix valves provide ON-OFF functions, and metering in the proper ratio of A and B components is controlled by the metering pumps. Different manifolds are offered to assist this metering process. The selection of the manifold for each application depends on the flow rate, viscosity, and volume ratio.

| RECOMMENDED VALVES BY MATERIAL OR VISCOSITY |                      |                    |  |
|---|----------------------|--------------------|--|
| Meter Mix Valves                            | Fluid Material       |                    |  |
| Pneumatic                                   | Adhesives & Sealants | Abrasive Urethanes | High Viscosity<br>(162A Series Mixers) |
| Series 400                                  | ✓                    | —                  | —                                      |
| Series 400HF                                | —                    | —                  | ✓                                      |
| Series 450                                  | ✓                    | —                  | —                                      |
| Series 450RC                                | ✓                    | —                  | —                                      |
| Series 450XT                                | —                    | ✓                  | —                                      |

# Using a Meter Mix Valve

## Step 4: Select Your Valve Seal (for pneumatic valves only)



If you're dispensing with a Series 400 or Series 450 pneumatic meter mix valve, you'll need to select the correct seal based on the type of material being dispensed.

EFD offers a wide variety of seal configurations. Select both the O-ring and U-cup seals based on chemical compatibility.

| RECOMMENDED VALVE SEAL BY MATERIAL TYPE |   |
|---|---|
| O-Rings Model/Color                     | Recommended for Contact With                      |
| Viton (Brown)                           | Methylene Chloride, Alcohol, Carbon Tetrachloride |
| EP (Black)                              | MEK, Ketones, Acetone                             |
| PTFE (Orange)                           | All Adhesives and Sealants                        |
| U-Cups Model/Color                      | Recommended for Contact With                      |
| UHPME-Cup (Clear) & SS Spring           | Epoxies Amine Catalyst, Polyesters, Acrylics      |
| PU-Cup (Orange) & Viton O-Ring (Brown)  | Epoxies General, Polyurethane, Polysulfides       |
| PTFE Cup (Aqua) & PTFE O-Ring (Orange)  | All Adhesives and Sealants                        |

## Step 5: Select Your Manifold (for pneumatic valves only)



Nordson EFD's two-component manifolds connect your meter mix valve to provide a simple method of bringing the resin and hardener into the mixing nozzle.

| MANIFOLD RECOMMENDATIONS      |        |                   |                          |               |                      |
|-------------------------------|--------|-------------------|--------------------------|---------------|----------------------|
|                               |        | Standard Flow 1:1 | Standard Flow Wide Ratio | High Flow 1:1 | High Flow Wide Ratio |
| Mixer Diameter                | < 1/4" | 400 / 450         | 400 / 450                | —             | —                    |
|                               | ≥ 3/8" | 450               | 450                      | 400           | 400                  |
| Effective Ratio* of the Mixer | < 7:1  | 400 / 450         | —                        | 400           | —                    |
|                               | ≥ 7:1  | —                 | 400 / 450                | —             | 400                  |

Mixer Diameter = Standard vs. High Flow

Effective Ratio = 1:1 or Wide Ratio

\*Effective Ratio is determined by multiplying the mix ratio with the component viscosity.

## Step 6: Select Your Handle (for pneumatic valves only)



Nordson EFD offers electric or pneumatic handles for actuating the air cylinder of the valve. These handles feature an ergonomic design, which make handheld applications easier to execute.

Choose from three types of electric handles:

1. Pistol grip handle with pneumatic switch
2. Pistol grip handle with electric momentary switch (24 V)
3. Pistol grip handle with electric push on/off switch (24 V)

Keep in mind if you're using an electric handle, a solenoid from an outside vendor is required.

## Step 7: Select a Metal Jacket for High Pressure Applications

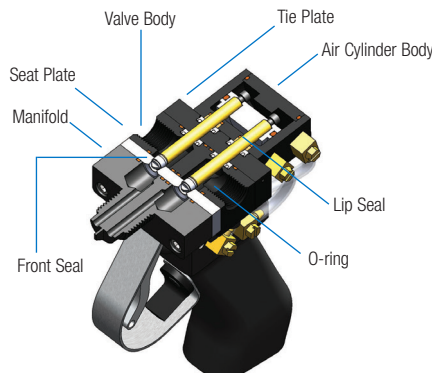


Nordson EFD recommends the One Piece Metal Jacket attachment when pressure inside the mixer is greater than 150 psi (10 bar). We offer a wide variety of one-piece, affordable jackets that can be used over the mixing nozzle.

Additionally, we offer precision machined jackets for automated dispensing applications.



# Series 400 Autovalve



With meter mix and dispense systems, the pneumatic Series 400 Autovalve is a durable and reliable valve. The A and B shut off pistons have PTFE seals allowing high flow with minimal maintenance as these seals can be adjusted without disassembly of the valve body. The 9/16-18 fluid inlet ports of the Series 400 Autovalve allows flow rates of 3-4 gallons per minute, depending on pump capability and material viscosity.

## Specifications 400/400HF/450

### Valve

**Size:** 83.8L x 63.5W x 58.4H mm (3.3 x 2.5 x 2.3")

**Body:** 6061-T6 aluminum or 303 stainless steel

**O-ring options\*:** Viton, PTFE, Ethylene-Propylene (E-P)

**Lip seal options\*:** Viton, Polyurethane (PU), PTFE, Polytuff, Ethylene-Propylene (E-P)

\* Repair kits containing a complete set of lip seals and O-rings are available.

### Manifold

**Size:** 48.3L x 63.5W x 38.1H mm (1.9 x 2.5 x 1.5")

**Material:** 6061-T6 aluminum or 303 stainless steel

**Outlet thread size options:** 7/8"-14 (for standard bell mixers); 1 5/16"-12 (for oversized bell mixers)

### Valve System

**Weight:** Aluminum valve and manifold: 1.6 lb (0.7 kg)

Stainless steel valve and manifold: 2.5 lb (1.1 kg)

**Operating Parameters:** Min. operating pressure: 5.5 bar (80 psi)

Max. fluid pressure: 240 bar (3500 psi)

**Electric handle mount switch:** 24V

## MANIFOLDS FOR SERIES 400 AUTOVALVES

| Ratio | Part # (Manifold) | Part # (Manifold with solvent port) | Material | Flow      |
|-------|-------------------|-------------------------------------|----------|-----------|
| 1:1   | 7701933           | 7701935                             | Aluminum | Low Flow  |
| 1:1   | 7701942           | -                                   | Aluminum | High Flow |
| Wide  | 7701946           | -                                   | Aluminum | High Flow |

# Series 400HF Autovalve

The 400HF Valve provides flow rates that are 15-30% greater than the standard 400 Valve configuration, without compromising accuracy or consistency. The large 3/4" material inlet ports permit flow rates of 4-5 gallons per minute, depending on pump capability and material viscosity.

## Recommended Mixer:

Series 160 Mixer

## 7701895 400 Autovalve

Aluminum Valve, Single Air Cylinder, TPV Seals

Order handle separately; see Autovalve Accessories for details.

## ORDERING GUIDE

- Valve, manifold, and handle are ordered individually
- For high back pressure conditions (i.e. over 1000 psi/69 bar) order a double air cylinder
- Seal Designations: T=PTFE, P=Polyurethane, V=Viton, G=Polytuff

## Recommended Mixer:

Series 162A Mixer

## Specifications

See Series 400, above

## 7704105 400HF Autovalve

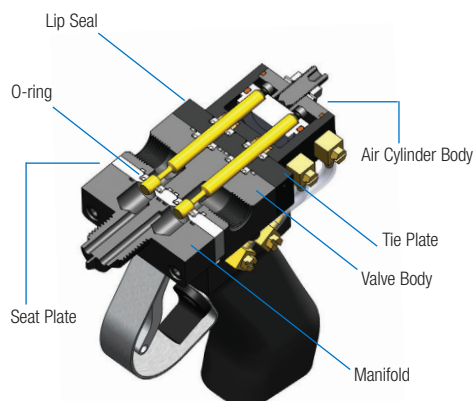
Aluminum Valve, Single Air Cylinder, TGT Seals

## 7701924 400HF Autovalve

Aluminum Valve, Single Air Cylinder, TPV Seals

Order handle separately; see Autovalve Accessories for details.

# Series 450 Autovalve



The pneumatic Series 450 Autovalve is similar to the Series 400 Autovalve, except for the shut-off pistons which ensure good control of dot or shot volume. After each shot, the dual pistons retract and “snuff back” material from the end of the mixing nozzle. This feature helps eliminate “after drool.” This valve includes hard-coated and lubricated pistons. It can be used either as a stationary head or hand-held unit. In addition, seals can be adjusted without disassembly of the valve body.

## MANIFOLDS FOR SERIES 450 / 450RC / 450XT AUTOVALVES

| Ratio | Part # (Manifold) | Part # (Manifold with solvent port) | Material        | Flow     |
|-------|-------------------|-------------------------------------|-----------------|----------|
| 1:1   | 7702221           | 7702222                             | Aluminum        | Low Flow |
| Wide  | 7702224           | -                                   | Aluminum        | Low Flow |
| 1:1   | 7702541           | -                                   | Stainless Steel | Low Flow |

## Recommended Mixer:

Series 160 Mixer

## Specifications

See Series 400, previous page

### 7702201 450 Autovalve

Aluminum Valve, Single Air Cylinder w/Snuff Back, GT Seals

### 7702209 450 Autovalve

Aluminum Valve, Single Air Cylinder w/Snuff Back, PV Seals

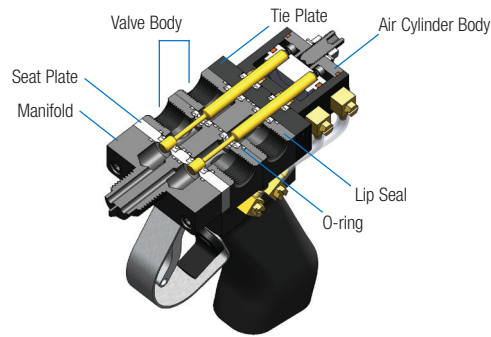
### 7702443 450 Autovalve

Stainless Steel Valve, Single Air Cylinder w/Snuff Back, GT Seals

Order handle separately; see Autovalve Accessories for details.



# Series 450RC Recirculating Autovalve



The 450RC Autovalve allows continuous flow of material while still being able to control shut-off at the mixer. Typical uses are for heated materials or materials with fillers that need to remain suspended. Gear pump applications can also benefit because pumps can be kept running while material is shut off at the mixer.

Recirculation occurring at the valve instead of the pump eliminates pressure buildup in the lines, preventing off-ratio dispensing. The valve also incorporates a snuff-back feature that minimizes or eliminates the possibility of material dripping or stringing when the valve shuts off.

## Specifications

### Valve

**Size:** 132L x 63.5W x 58.4H mm (3.3 x 2.5 x 2.3")

**Body:** 6061-T6 aluminum or 303 stainless steel

**O-ring options\*:** Viton, PTFE Ethylene-Propylene (E-P)

**Lip seal options\*:** Viton, Polyurethane (PU), PTFE, Polytuff, Ethylene-Propylene (E-P)

\* Repair kits containing a complete set of lip seals and O-rings are available.

### Manifold

**Size:** 48.3L x 63.5W x 38.1H mm (1.9 x 2.5 x 1.5")

**Material:** 6061-T6 aluminum or 303 stainless steel

**Outlet thread size options:** 7/8"-14 (for standard bell mixers)

### Valve System

**Weight:** Aluminum valve and manifold: 2.0 lb (0.9 kg)

Stainless steel valve and manifold: 3.4 lb (1.5 kg)

**Operating Parameters:** Min. operating pressure: 80 psi (5.5 bar)

Max. fluid pressure: 3500 psi (240 bar)

**Electric handle mount switch:** 24V

## Recommended Mixer:

Series 160 Mixer

## Manifolds:

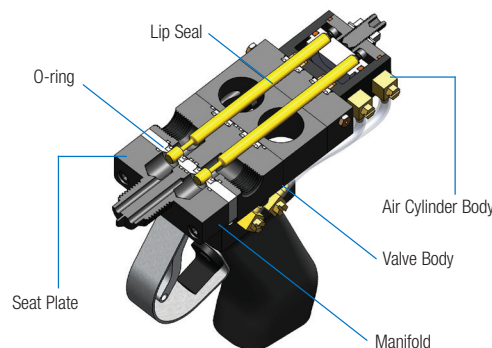
See Series 450 Manifold Table, previous page

## 7702217 450RC Autovalve

Aluminum Valve, Single Air Cylinder w/ Snuff Back, GT Seals

Order handle separately; see Autovalve Accessories for details.

# Series 450XT Snuff Back Valve



This innovative dispense valve is designed specifically for two-component urethanes and eliminates exposure of wetted shafts to air. Since 2K urethanes are moisture sensitive, any contact with air can cure the material, locking up the dispense valve.

## Specifications

**Weight:** Aluminum valve and manifold: 1.6 lb (0.7 kg)

Stainless steel valve and manifold: 2.5 lb (1.1 kg)

**Pressure Rating:** 240 bar (3500 psi)

## Accessories

**Polytuff, PTFE, Viton, and EP seals:**

For varying chemical formulations and abrasive conditions

**Optional Night Cap & Ratio Check Cap:**

Available for 1:1 ratio manifolds

## Recommended Mixer:

Series 160 Mixer

## Manifolds:

See Series 450 Manifold Table, previous page



## 7702216 450XT Autovalve




Aluminum Valve, Extended Air Cylinder with Snuff Back and GT Seals

Order handle separately; see Autovalve Accessories for details.



## 400 / 450 Autovalves Accessories

| CARBON STEEL PIPE ADAPTERS   |         |  |
|--|---------|--|
| Part   | Part #  | Description  |
|   | 7702420 | 90° Elbow w/3/8" FNPS                                |
|  | 7702425 | Straight Adapter w/3/8" FNPS                         |
|  | 7702429 | 2K V-Parts CS H-Adpt Elbow 1/2" FNPT                 |
| TRIGGER HANDLES  |         |  |
| If using an electric handle, a solenoid from an outside vendor is required. Elbow adapters are available to connect material lines to the valve. |         |  |
| Part   | Part #  | Description  |
|   | 7701971 | Pistol Grip Handle w/Electric Momentary Switch (24V) |
|  | 7701977 | Pistol Grip Handle w/Pneumatic Switch                |
|  |         |  |

| RATIO CHECK CAP AND NIGHT CAP  |         |                            |        |  |
|--|---------|----------------------------|--------|--|
| Part   | Part #  | Description                |        |  |
|   | 7701181 | PTFE Night Cap & Nut       |        |  |
|  | 7701184 | PTFE Ratio Check Cap & Nut |        |  |
|  |         |                            |        |  |
| REPAIR KITS  |         |                            |        |  |
| Part   | Part #  | Description                |        |  |
|  | 7704093 | 2K Kit 4X0 Repair TGT      |        |  |
|  | 7704095 | 2K Kit 4X0 Repair TPV      |        |  |
|  | 7704096 | 2K Kit 4X0 Repair TTT      |        |  |
| VALVE SEALS  |         |                            |        |  |
| EFD offers a wide variety of seal configurations for Series 400/450 autovalves.<br>Select both the O-ring and U-cup seals based on chemical compatibility. |         |                            |        |  |
| O-rings  | Part #  | Material                   | Color  | Description  |
|   | 7702275 | PTFE                       | Orange | Recommended with all chemicals   |
|  | 7702810 | EP                         | Black  | MEK, ketones, and acetones   |
|  |         |                            |        |  |
| U-cups   | Part #  | Material                   | Color  | Description  |
|    | 7702280 | PTFE                       | Aqua   | With PTFE O-ring /<br>Recommended with all chemicals                   |
|  | 7702277 | UHPME                      | Clear  | With SS spring / Epoxies (amine catalyst), polyesters, and acrylics    |
|  | 7702281 | PU                         | Orange | With Viton O-ring / Epoxies (general), polyurethanes, and polysulfides |



## BLOCK MANIFOLDS FOR MIXERS



Nordson EFD's two-component manifolds separately port the resin and hardener into the mixing nozzle. Cleanup simply involves wiping the manifold face after the nozzle has been removed. To prevent back flow or cross contamination of reactive material, inline check valves are available. Designed when you're dispensing without a meter mix valve, but directly through the mixer. For use with Series 160 and 162A.

| Part #  | Material | Inlet         | Outlet         | Solvent Ports | Mixer       |
|---------|----------|---------------|----------------|---------------|-------------|
| 7701323 | Aluminum | (2) 1/8" FNPT | 7/8 - 14       | 1/4" FNPT     | Series 160  |
| 7701325 | Aluminum | (2) 1/4" FNPT | 7/8 - 14       | 1/4" FNPT     | Series 160  |
| 7701329 | Aluminum | (2) 1/2" FNPT | 1-5/16 - 12 UN | 1/4" FNPT     | Series 162A |

## ADAPTERS FOR MIXERS



Mixers can be connected to some pre-existing manifolds or valves using adapters. Contact Nordson EFD for details. For use with Series 85, 100, 160, and 162A.

| Part #  | Material     | Inlet                             |
|---------|--------------|-----------------------------------|
| 7701252 | Carbon Steel | 11/16" Female NPT (for Venus Gun) |
| 7701254 | Carbon Steel | 1/4" Male NPT                     |

## RETAINING NUTS FOR MIXERS & METER MIX VALVES



Available to hold mixing nozzles onto adapters, block manifolds, and meter mix valves. Also used when a metal jacket is not required.

| Part #  | Material     | Thread               | Mixer                           |
|---------|--------------|----------------------|---------------------------------|
| 7701110 | Aluminum     | 2K Standard 7/8 - 14 | Series 160 with ID 0.189-0.248" |
| 7701113 | Aluminum     | 2K Standard 7/8 - 14 | Series 160 with ID 0.314-0.497" |
| 7701114 | Aluminum     | Alternative 7/8 - 9  | Series 160 with ID 0.314-0.497" |
| 7701115 | Aluminum     | 2K Standard 7/8 - 14 | Series 141 & Series 161 (all)   |
| 7701116 | Aluminum     | Alternative 7/8 - 9  | Series 161 (all)                |
| 7701108 | Aluminum     | 1-1/16 - 12          | Series 141 (all)                |
| 7026515 | Carbon Steel | 1-5/16 - 12 UNF      | Series 162A (all)               |
| 7701132 | Aluminum     | 1-1/4 - 12 NS        | Series 141 (all)                |
| 7701118 | Aluminum     | 2K Standard 7/8 - 14 | Series 141 (all)                |

## METAL JACKETS & METER MIX VALVES



Available to hold mixing nozzles onto adapters, block manifolds, and meter mix valves. Also used when a metal jacket is not required.

| Part #  | Material            | Thread               | Mixer Part #     | Mixer       |
|---------|---------------------|----------------------|------------------|-------------|
| 7701124 | Aluminum, Robotic   | 2K Standard 7/8 - 14 | 7700837          | Series 160  |
| 7701140 | Aluminum            | 2K Standard 7/8 - 14 | 7700819          | Series 160  |
| 7701143 | Aluminum            | 2K Standard 7/8 - 14 | 7700856          | Series 160  |
| 7701163 | Aluminum            | Alternative 7/8 - 9  | 7013510          | Series 160  |
| 7701167 | Aluminum            | 2K Standard 7/8 - 14 | 7700904          | Series 160  |
| 7701165 | Aluminum, Robotic   | 2K Standard 7/8 - 14 | 7700904          | Series 160  |
| 7701171 | Aluminum            | 2K Standard 7/8 - 14 | 7700927          | Series 160  |
| 7701170 | Aluminum, Robotic   | 2K Standard 7/8 - 14 | 7700927          | Series 160  |
| 7701174 | Aluminum            | 2K Standard 7/8 - 14 | 7700932          | Series 160  |
| 7701203 | ACS Nut / SS Jacket | 2K Standard 7/8 - 14 | 7701010, 7701049 | Series 160  |
| 7701208 | Aluminum, Robotic   | 2K Standard 7/8 - 14 | 7701010, 7701049 | Series 160  |
| 7701210 | CS Nut / SS Jacket  | 2K Standard 7/8 - 14 | 7701028          | Series 160  |
| 7701396 | Aluminum, Robotic   | 2K Standard 7/8 - 14 | 7361695          | Series 480  |
| 7701226 | CS Nut / SS Jacket  | 1-5/16 - 12          | 7701059          | Series 162A |

## DISPENSING TIPS FOR MIXERS



Luer Lok adapters (locking hubs) are used for attaching Optimum dispensing tips to Series 190 and 160 mixers. If you want to use a metal jacket with the 3.16" ID or 1/4" ID bell mixers, order the mixer and the Luer Lok fitting as two separate items unassembled: square hub outlet and #7700943 Luer Lok fitting (bag of 50). See **Optimum Dispensing Tips** for details: [www.nordson.com/tips](http://www.nordson.com/tips)

## Useful Resources



### Application Videos

Visit our Video Gallery to access 150+ application, how-to, and product videos. See EFD dispensing solutions in action.

Watch Videos: [www.nordsonefd.com/VideoGallery](http://www.nordsonefd.com/VideoGallery)



### Expert Recommendations

Knowledgeable Nordson EFD fluid application specialists have, on average, more than 10 years of experience helping customers find the right dispensing solutions.

Request Expert Advice: [www.nordsonefd.com/Advice](http://www.nordsonefd.com/Advice)



### Easy Part Number Search

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### Request Samples

If you'd like to test EFD Optimum syringe barrels, precision dispense tips, cartridges, 2K mixers, or other disposable dispensing components with your application, please request samples.

Request Free Samples: [www.nordsonefd.com/DispensingSamples](http://www.nordsonefd.com/DispensingSamples)

# Meter Mix Valves

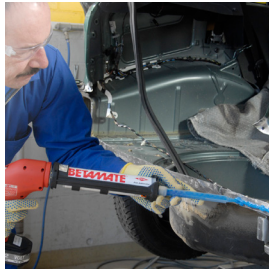
## Request More Information

Nordson EFD's worldwide network of experienced product application specialists are available to discuss your dispensing project and recommend a system that meets your technical requirements and budget.

Call or email us for a consultation.

800.556.3484    [info@nordsonefd.com](mailto:info@nordsonefd.com)

[www.nordsonefd.com/Advice](http://www.nordsonefd.com/Advice)



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