Introduction

Since 1963, Nordson EFD dispensing systems have helped thousands of companies make precise deposits of adhesives, lubricants and other assembly fluids.

Our business is to match your specific application needs with our wide range of dispensing tools to maximize your total cost savings.

From benchtop dispensers to high-performance automated dispensing systems, EFD devices are used by manufacturers in hundreds of industries throughout the world.

We invite you to learn more, and look forward to working with you.

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Aerospace

As the aerospace industry continues to grow with its surge in commercial aircraft markets driven by the civil aircraft, engines and related parts and components sector, EFD is a vendor of choice by leading manufacturers.

The civil aircraft market accounts for 40% of Aerospace and Defense Industry spending. Replacement of U.S. military aircraft and a resurgence in demand for rotary-wing aircraft have also created rich opportunities for EFD within the aerospace industry.

EFD dispensing equipment is currently used in the following aerospace manufacturing categories:

- Aircraft and aircraft parts manufacturing
- Guided missile and space manufacturing
- Search, detection and navigation manufacturing

“"We are saving 2 to 4 hours on every 100 parts.""  
Grimes Aerospace
Automotive

Automotive suppliers and manufacturers worldwide specify EFD precision dispensing systems to consistently apply adhesives, sealants, grease, inks and other fluids during their assembly processes.

Many of the high-performance fluids needed to bond materials and seal exposed parts are expensive, making waste reduction an important issue. In many applications, the elimination of over-deposits can reduce material waste by 50% or more. EFD systems are designed to empty material reservoirs as completely as possible, minimizing waste. The closed-system design also reduces waste by minimizing premature curing of the materials.

When fluids are dispensed consistently, regardless of the operator or machine assembling parts, manufacturers are able to achieve better control and streamline production, reducing labor time and rework.

Cleaner application with EFD systems means less time and cost for cleanup. Many EFD customers are able to double their output while maintaining—and even increasing—the quality of their products.

Applications include:

- **Bonding** rubber to rubber, weather stripping, mirror assemblies and shock absorbers.
- **Marking** for pass/fail status, color-coding similar assemblies and indicating whether a specific test or process has been completed.
- **Greasing and lubricating** springs, tracks, hinges and hardware, as well as lubricating caliper plungers in brake assemblies.
- **Potting and sealing** electronics and components from moisture and other environmental damage.
- **Lubricating** stock, dies and rolls in fin forming applications.

“*In manufacturing, reliability is everything. That’s what we get from EFD valves. If all our equipment worked as well ... our jobs would be easier.*”

Ford Motor Company

“*Machine downtime was reduced to almost zero, and braze paste usage reduced by 40%.*” S&H Fabricating

**Fluids dispensed:**
- RTV Sealants
- Anaerobics
- Greases
- Cyanoacrylates
- UV-cure Adhesives
- Epoxies
- Solder Pastes

**Dispensing Applications:**
- Brakes
- Body Panels
- Frames and Suspensions
- Wheels and Wheel Covers
- Windshields
- Instrument Panels
- Passenger Restraints
- Air Conditioning Systems
- Engines and Engine Components
- Transmissions
- Electrical Systems
- Fuel Systems
- Control Switches
- Lighting, Headlamps
- Mirrors
- Wiring Harness Connectors
- Sensors, Relays, Regulators
Construction

Two-component adhesives, sealants, foams and coatings are often used in construction operations, such as securing chemical anchors, filling cracks and sealing joints.

EFD can supply a variety of products to simplify the application of these and other 2-component materials packaged in side-by-side and in-line cartridges.

Products include manual and pneumatic dispensers, along with a variety of static mixers that ensure thorough product mixing for optimum performance with minimal waste.

Accessories include tube extensions for placing material deep inside recesses, snap-on tips and low pressure, air-assisted mixers for 2-part coatings.

Fluids dispensed:
Epoxies  
Urethanes  
Silicones  
Polyesters  
Lubricants  
Temporary Cements  
Methacrylates  
Greases

Dispensing Applications:
- Joint Sealing
- Chemical Anchors into Concrete, Brick, Stone and Wood
- Crack Repair
- Caulking
- Door and Window Sealing
- Nail Plate Manufacturing
- Hydraulic Pumps
- Roof Installations
Electronics

EFD precision dispensing systems deliver consistent and reliable deposits that improve yields and reduce costs in electronics and electro-mechanical assembly processes.

EFD operator-controlled, microprocessor-based dispensers improve productivity in benchtop assembly processes, while valve systems increase yields in automated and semi-automated operations. The Ultimus IV Positive Displacement System is ideal for dispensing 2-part epoxies and other fluids with changing viscosities.

EFD dispensing robots combine precision dispensing and accurate positioning functions into one fully integrated, compact tabletop unit to produce the right deposit in the right place—every time. These systems offer reliable operation with excellent repeatability for dispensing adhesives, sealants, solder pastes and other assembly fluids.

EFD’s solder paste formulations meet the most stringent application requirements in the electronics industry for reliable process control, resulting in increased throughput and first-pass yields.

EFD’s precision dispensing systems can help LED manufacturers increase productivity and efficiency and reduce waste through controlled application of the silicones, conductive adhesives, flux and solder paste used in LED assembly processes.

Many components used in fiber optic systems require microdeposits of 2-part epoxies, UV-cure adhesives, RTV silicones and other assembly fluids. Leading fiber optics and photonics manufacturers rely on EFD precision dispensing systems to apply accurate, precise amounts of these materials in applications like bonding fibers to ferrules, sealing couplers and securing components.

“Your dispensers work great. Making dots used to be an art. Now we don’t even think about it. We just fill the barrels and go.”

Preferred Technical Group

Dispensing Applications:
- Fiber Optics
- Electronic Chips
- Liquid Crystal Displays
- Microwave Components
- PC Board Assemblies
- Capacitors
- Electronic Housing Chassis
- Membrane Switches
- SMT Circuit Boards
- Computers
- Cable TV Converters
- LEDs
- Cell Phones
- Digital Cameras

Fluids dispensed:
- Solder Pastes
- Epoxies
- Silicones
- RTV Sealants
- Cyanoacrylates
INDUSTRIES

1K and 2K Fluid Packaging

Nordson EFD’s components bring fluid packaging to a higher level of reliability to meet the demands of today’s cutting edge manufacturing processes.

We manufacture a comprehensive line of high-quality syringes and cartridges for packaging one- and two-component materials quickly and efficiently, without trapped air or waste. We also make a wide range of static mixers that include traditional spiral mixers and square mixers that provide comparable results in a shorter length that lets the user get closer to the workpiece.

Our patented u-TAH™ Universal Cartridge is a 2-component system designed for use with standard industrial-grade caulking guns. Its unique design maintains accurate ratio control in a compact package that encourages market acceptance by eliminating the need to purchase special-purpose dispensing guns.

All products are molded in our own US facilities, enabling us to offer individual components in economical bulk quantities, or in any preassembled configuration that will make your filling process more efficient and cost-effective.

“EFD is our favorite vendor to deal with — fast, professional and top notch products.” Contract Packager

“The quality of the packages that we put our products in matters, and that’s why we use EFD syringes and cartridges.” Dymax Corporation

Fluids commonly packaged:
- Greases
- Bait Gels
- Thermal Compounds
- Lubricants
- Adhesives
- Epoxies
- Braze Pastes
- Solder Pastes
- RTV Sealants
- Silicones
Food Manufacturing, Processing, and Packaging

EFD valve systems dispense controlled, consistent amounts of cosmetics, pharmaceuticals, and food and beverage products, as well as cyanoacrylates, solvents and UV-cure adhesives used in packaging and production operations.

Applications include:

- **Filling** bottles and pouches with condiments, sport drinks and creams with the 725HF high-flow valve system.
- **Applying microdots** or **precise, thin beads of solvents** with the 741V needle valve for tamper-proof shrink wrapping.
- **Dispensing repeatable dots** of cyanoacrylates and UV adhesives on clamshells with the compact, lightweight 752V diaphragm valve.
- **Spraying** fine, consistent food coatings or release agents with the 781S-SS spray valve system. Also perfect for spraying ink for pass/fail marking or part identification.
- **Lubricating** metal stock used in canning and tab stamping processes with the MicroCoat System.

“Production doubled the first day the EFD systems were installed.” Food Packaging Group
Life Sciences

The Life Sciences industry continues to be a growing market segment for EFD. Medical device manufacturers must meet stringent FDA and other agency regulations for quality and product consistency, making process control a critical issue.

EFD offers quality unmatched by any other dispensing equipment manufacturer. All materials and manufacturing processes are documented for complete traceability and process validation, and all molding, machining, assembly and packaging are performed in our certified silicone-free facilities. EFD’s advanced fluid dispensing systems apply accurate, consistent amounts of UV-cure adhesives, cyanoacrylates, silicones, and other fluids used in medical device assembly processes.

Benchtop dispensers make fluid application simple, fast and accurate, and can make deposits ranging from uniform dots as small as 0.004” in diameter to neat, controlled beads.

Pneumatically operated dispense valves combine accuracy, low maintenance and outstanding reliability. Applications include bonding medical parts, filling small containers with solutions, applying markings on catheters, dispensing lens monomers, lubricating syringes, coating stents and dispensing solutions on test strips.

Tabletop robots combine precise placement with accurate fluid deposits, and are a cost-effective way to automate bonding, sealing, filling and coating applications.

“Our product is critical. That’s why our choice is EFD equipment.”
Ethicon Endo Surgery

Fluids dispensed:
- UV-cure Adhesives
- Silver Epoxies
- Cyanoacrylates
- Silicones
- Saline Solutions
- Monomers
- RTVs
- Solder Pastes
- Lubricants
- Hydrophilic Coatings
- Antibiotics
- Protein Solutions
- Reagents

Dispensing Applications:
- Catheters
- Pacemakers
- Contact Lenses and Packages
- Vial Filling
- Syringe Lubrication
- Stent Coating
- Membranes
- Surgical and Dental Tools
- Diagnostic Equipment
- Respiration Devices
- Defibrillators
- Hearing Aids
- Pills and Medicines
Wireless

The industry growth rate for smartphones, tablets and other mobile devices is high, and continues to expand. As these products continue to get smaller and more complex, the adhesives and other fluids used to assemble them need to be applied with greater and greater precision.

EFD offers a variety of dispensing technologies to meet the demanding requirements of this rapidly expanding market. These include precision dispense valves, cost-effective tabletop dispensing robots, and extremely fast and accurate piezoelectric jetting and dispensing valves.

With a global network operating in 40 countries, we have the equipment and the resources to provide mobile device manufacturers with dispensing solutions tailored to their specific applications, along with timely delivery and experienced local support.

Applications include:
- Camera modules — Bonding lenses to barrels and barrels to holders
- Microspeakers — Bonding membranes to coils and housings
- Displays — Exterior edge seals, chip on glass (COG), tab seals and interior filling
- Touch panels — Exterior bonding to displays or other components, interior bonding of panel layers
- Keypads — Bonding keys to pads
- Miscellaneous assembly — Bonding cover glass, trim, emblems
- Applying hydrophobic coatings, encapsulating materials, protective lubricants

Fluids dispensed:
- UV Adhesives
- Cyanoacrylates
- Hydrophobic Fluids
- 2K Bonding Adhesives

Dispensing Applications:
- Displays
- Touch Panels
- Microspeakers
- Keypads
- Camera Modules
- Protective Treatments
- Cover Glass
- Frames
- Accessories
- Miscellaneous Unit Assembly
Photovoltaics

Interest in photovoltaics continues to grow, due to increased awareness of global warming and the shortage in energy worldwide.

EFD offers a variety of dispensing systems for applying controlled amounts of solder paste, flux, coatings, silicones and other fluids used in photovoltaic manufacturing processes.

Products include high-speed jet dispensing systems, precision coating systems, pneumatic benchtop dispensers, precision dispense valves for automated production lines, dispensing robots and high-quality solder pastes. Benefits include higher yields, less rework, fewer rejects, and improved cell efficiency and reliability.

Applications include:
- Applying solder for cell interconnection in back-contacting or tabbing and stringing processes
- Spraying flux on pre-tinned ribbon or directly to printed bus bars on cells
- Applying electrically conductive adhesive to bus bars on cells and ribbons used for cell interconnection
- Attaching junction boxes to modules with silicone
- Sealing module frames with silicone
- Precise application of etching and masking materials
- Applying dielectric adhesives for cell short prevention
- Applying solder paste or conductive adhesives for diode attachment

Dispensing Applications:
- Doping of Wafers
- Fluxing of Cells and Strings
- Conductive Adhesives for Tabbing and Stringing
- Sealing Module Frames
- Gasketing
- Etching
- Coating

Fluids dispensed:
- Ethanol/Phosphorous
- Solder Pastes
- Flux Pastes
- Printable Inks
- Silicones
- Conductive Adhesives
Fluid Dispensing Systems

EFD’s precision dispensing systems make it simple to apply accurate, repeatable amounts of virtually any assembly fluid — including adhesives, epoxies, lubricants, threadlockers, paints and grease.

By using digital timers and precision air regulators or positive displacement technology to determine the amount of material applied, EFD dispensers eliminate operator guesswork and take the variability out of the dispensing process.

The result is higher productivity, better quality and reliability, a cleaner and safer workplace, and lower production costs.

Products range from high-precision dispensers for critical applications that require a high degree of process control to economical units for general-purpose use.
Ultimus™ V

The Ultimus V High Precision Dispenser provides the highest level of accuracy and process control when applying fluids that change viscosity, including 2-part epoxies and other fluids that thicken over time, as well as UV-cure adhesives and materials that get thinner as ambient temperatures rise.

Features and Benefits

- Fully electronic control of dispense time, air pressure and vacuum to ensure exceptionally high accuracy, repeatability and shot consistency
- Programmable memory that automatically adjusts dispensing parameters for viscosity changes
- Interactive PC software and remote communications with PC/PLC via RS232 protocol
- Selectable operator lockout and alarm settings

See page 16 for a complete list of dispensing accessories.
Ultimus IV Series

Positive displacement dispensers are ideal for applying uniform amounts of 2-part epoxies and other fluids that change viscosity over time.

Compressed air is not required — instead, these electrically operated units use stepper motors and patented technology to advance and retract a piston inside the syringe barrel. They will produce accurate, repeatable deposits, regardless of changes in fluid viscosity or temperature.

Features and Benefits

- Highly repeatable, precise fluid control
- Non-pneumatic, shop air not required
- All-electric, multi-function display
- Programmable pullback stops drooling
- 100 user-defined memory cells

Specifications

- Cabinet size: 18.4" x 8.1" x 32.3" cm (7.25" x 3.18" x 12.73")
- Weight: 3.7 kg (8.2 lb)
- Cable assembly: 1.8 m (6 ft)
- Input AC (to power supply): Universal Multi Voltage 100-240 VAC, 50/60Hz
- AC input frequency: 50/60Hz
- Initiate circuits: Foot pedal, cycle start button or 5 to 24 VDC signal
- Approvals: CE, RoHS, WEEE & China RoHS Compliant
- Warranty: 2 years, no fault

ULTIMUS MODELS AND FEATURES

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Each dispenser kit includes:
- (2) boxes of syringe barrel/ red pistons
- (2) boxes of dispensing tips
- (2) boxes of tip caps
- Foot pedal
- Cabinet-mounted barrel holder

See page 16 for a complete list of dispensing accessories.
Ultimus I, II and III

Featuring simultaneous digital display of all dispenser settings and time adjustment as fine as 0.0001 seconds, Ultimus dispensers bring exceptional process control to medical device, electronics and other critical dispensing processes.

Features and Benefits

• All-digital, multi-function display
• 16 memory settings
• 4-decimal time setting
• Multilingual display
• Operator security lockout
• High-speed solenoid for highly accurate deposits
• Universal power supply

Specifications

Cabinet size: 14.3” x 18.1” x 17.3” cm
(5.63” W x 7.12” H x 6.82” D)

Weight: 2.3 kg (5.0 lb)

Cycle rate: Exceeds 600 cycles per minute

Time range: 0.0001 to 999.9999 seconds

Input AC (to power supply):
Universal Multi Voltage
100-240 VAC, 50/60Hz

Output DC (from power supply):
24 VDC, 1.04 Amp maximum

End-of-cycle feedback circuits:
5 to 24 VDC, 100 mA maximum

Initiate circuits:
Foot pedal, finger switch or 5 to 24 VDC signal

Approvals:
CE, CSA, RoHS, WEEE & China RoHS Compliant

Warranty: 10 year, no-fault

See page 16 for a complete list of dispensing accessories.

7017041 Ultimus I
(2400)
Features a 0-100 psi (0-7 bar) pressure regulator that handles all fluids.

70022003 Ultimus II
(2415)
Has a 0-15 psi (0-1 bar) regulator that provides greater control when dispensing thin fluids.

7017068 Ultimus III
(2405)
Uses a 0-5 psi (0-0.35 bar) regulator for dispensing micro-deposits of solvents and other very thin fluids.

Dispensers
Performus™ I
For operator-controlled dispensing applications requiring only a manual deposit.

Features and Benefits
- Neat beads, dots and fills
- Vacuum control keeps thin fluids from dripping
- Foot pedal initiation
- Compact design

Performus VII
For applications that require a high degree of process control.

Features vacuum control, a convenient Teach function that makes it simple to set initial shot size and an I/O connection. The Performus VII also includes a digital vacuum display that adds an extra degree of process control.

Features and Benefits
- Exceptional process control
- Teach function
- Timed or steady operation
- Digital vacuum display
- Consistent dots and fills
PERFORMUS MODELS AND FEATURES

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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Performus VIII</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Specifications

- Cabinet size: 18.3w x 5.1h x 8.6d cm (7.22”w x 2”h x 3.38”d)
- Weight: 1 kg (2.2 lb)
- Cycle rate: Exceeds 600 cycles per minute
- Input AC (to power supply):
  - Universal Multi Voltage
  - 100-240 VAC, 50/60Hz
- Output DC (from power supply):
  - 24 VDC, 1.04 Amp maximum
- Initiate circuits: Foot pedal, finger switch
- Approvals:
  - CE, CSA, RoHS, WEEE & China RoHS Compliant
- Warranty:
  - Performus I-II: 1 year, limited
  - Performus III-VIII: 2 year, limited

See page 16 for a complete list of dispensing accessories.
<table>
<thead>
<tr>
<th>PART #</th>
<th>ACCESSORY</th>
<th>DESCRIPTION</th>
<th>ULTIMUS</th>
<th>PERFORMUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>7017105</td>
<td>Flex arm syringe barrel holder</td>
<td>Mounts to dispenser cabinet; can be adjusted to multiple positions</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7017113</td>
<td>Stiff arm syringe barrel holder</td>
<td>Mounts to dispenser cabinet and holds barrel in fixed position</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7014503</td>
<td>Optimeter - 30cc size</td>
<td>Syringe barrel adapter that maintains consistent full-to-empty pressure on fluid being dispensed</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7014504</td>
<td>Optimeter - 10cc size</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7017133</td>
<td>Barrel hand grip</td>
<td>Hand grip only without finger switch</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>7017131</td>
<td>Finger switch</td>
<td>Ergonomic hand grip with built-in touch sensor and high beam penlight</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>7016718</td>
<td>Finger switch (Rectangular Connector)</td>
<td></td>
<td></td>
<td>✓ ✓</td>
</tr>
<tr>
<td>7017089</td>
<td>Finger switch (Round DIN Connector)</td>
<td>Low voltage, push-button finger switch controls dispense cycle</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7017288</td>
<td>Syringe barrel production stand</td>
<td>Provides full-barrel swivel, horizontal and vertical adjustment. Accepts all EFD barrels.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7021053</td>
<td>Syringe barrel production stand</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7017122</td>
<td>Workstation lamp</td>
<td>Mounts on flex arm and provides targeted lighting on work area</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7017119</td>
<td>Safety shield</td>
<td>Provides splash protection</td>
<td>✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accessory mount (1 required for use with Ultimus IV - #7017185)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>7017138</td>
<td>Production extension shelf</td>
<td>Provides flat work surface for other tools or dispenser stacking</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7017135</td>
<td>Magnifying lens</td>
<td>1.7x magnification mounts on flex arm</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accessory mount (1 required for use with Ultimus IV - #7017185)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>7017143</td>
<td>8-pin I/O connector assembly</td>
<td>Allows easy connection to dispenser for external control</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7017049</td>
<td>Cleanroom filter muffler</td>
<td>Filters output air to meet Fed 209-B (0.5 micron particulates)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7017167</td>
<td>Vacuum pickup pen system</td>
<td>Vacuum generator and pen system for picking and placing small parts</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
## DISPENSER ACCESSORIES

<table>
<thead>
<tr>
<th>PART #</th>
<th>ACCESSORY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>7013229</td>
<td>Dispensing tip sample kit</td>
<td>Includes a selection of various types and styles of dispensing tips, pistons, tip and end caps — 150+ pieces</td>
</tr>
<tr>
<td>7024803</td>
<td>VacTweezer™ pickup tool</td>
<td>Useful, low cost pick-and-place tool with staticide treated kit. Includes (7) tips, (5) pad sizes</td>
</tr>
<tr>
<td>7002002</td>
<td>Five-micron filter regulator</td>
<td>Provides proper air filtering for all dispensers. Order if you do not have a clean, dry, filtered factory air supply.</td>
</tr>
<tr>
<td>7016548</td>
<td>Five micron filter regulator with coalescing filter</td>
<td>Five micron filter regulator with coalescing filter</td>
</tr>
<tr>
<td>7021515</td>
<td>Coalescing filter assembly only</td>
<td>Recommended for systems dispensing cyanoacrylates</td>
</tr>
<tr>
<td>7016540</td>
<td>Filter element replacement kit</td>
<td>Removes liquid aerosols from air supply</td>
</tr>
</tbody>
</table>
Handheld Dispense Valves

Handheld dispense valves are a good choice for manual assembly applications where a timed shot is not required and a relatively large amount of fluid is being applied.

Handheld dispense valve systems are shipped complete with all hardware necessary for production. Systems include a lever-actuated dispense valve, 1.0 liter or 5.0 liter tank reservoir with pressure regulator (1 to 60 psi), all fittings, 10-ft fluid feed tube, disposable plastic tank liner, valve stand and (30) different dispensing tips.

725-HL Handheld piston valve provides high-flow application of medium- to high-viscosity non-reactive fluids.

740V-HL Handheld needle valve dispenses precise beads and dots of low-to-medium viscosity fluids like UV-cure adhesives, paints and inks, activators and lubricants.

752V-HL Handheld diaphragm valve is ideal for gasket bonding and applying anaerobics or cyanoacrylates.

Features and Benefits
• Ergonomic design
• Positive shutoff, no dripping
• Easy to use
• Simplified maintenance

<table>
<thead>
<tr>
<th>Fluids</th>
<th>MODELS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>752V-HL</td>
</tr>
<tr>
<td>Anaerobics</td>
<td>●</td>
</tr>
<tr>
<td>Oils</td>
<td>●</td>
</tr>
<tr>
<td>Cyanoacrylates</td>
<td>●</td>
</tr>
<tr>
<td>White Glues</td>
<td>X</td>
</tr>
<tr>
<td>Greases</td>
<td>X</td>
</tr>
<tr>
<td>Braze Pastes</td>
<td>X</td>
</tr>
<tr>
<td>Paste Fluxes</td>
<td>X</td>
</tr>
<tr>
<td>Solvents</td>
<td>●</td>
</tr>
<tr>
<td>Vinyl Adhesives</td>
<td>X</td>
</tr>
</tbody>
</table>

Key
● Recommended
X Do not use
PORTABLE DISPENSERS

Portable Dispensers
Versatile and inexpensive, manual dispensers are ideal for touch-ups, low-volume assembly and field work. They can be used with all EFD syringe barrels, pistons and tips.

HPD  Designed for use with EFD syringe barrels and pistons, HPD Hand Plungers provide a clean, comfortable alternative to squeeze bottles and hand syringes.

DispensGun  Features 10:1 mechanical leverage that makes it easy to dispense thick materials like greases and silicones without hand fatigue. A clean cutoff when the trigger is released prevents oozing between fluid applications.

Features and Benefits
• Ergonomic design
• Fatigue-free dispensing of thick fluids
• Positive shutoff, no dripping
• Simplified maintenance
• Reusable

<table>
<thead>
<tr>
<th>Fluids</th>
<th>MODELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaerobics</td>
<td>DG HPD</td>
</tr>
<tr>
<td>Coatings</td>
<td>▲ ▲</td>
</tr>
<tr>
<td>Cyanacrylates</td>
<td>X X</td>
</tr>
<tr>
<td>Gel Cyanacrylates</td>
<td>▲ ▲</td>
</tr>
<tr>
<td>White Glues</td>
<td>▲ ▲</td>
</tr>
<tr>
<td>Epoxies</td>
<td>▲ ▲</td>
</tr>
<tr>
<td>Inks</td>
<td>X ▲</td>
</tr>
<tr>
<td>Greases</td>
<td>X ▲</td>
</tr>
<tr>
<td>Oils</td>
<td>X ▲</td>
</tr>
<tr>
<td>Sealants</td>
<td>▲ ▲</td>
</tr>
<tr>
<td>Silicones</td>
<td>▲ ▲</td>
</tr>
<tr>
<td>Solder/Braze Pastes</td>
<td>▲ ▲</td>
</tr>
<tr>
<td>Solvents</td>
<td>X X</td>
</tr>
<tr>
<td>UV Cure</td>
<td>▲ ▲</td>
</tr>
</tbody>
</table>

Key
●  Recommended
▲  Satisfactory
X  Do not use

7023615 (HPD3K)
3cc syringe barrel size

7023622 (HPD5)
5cc syringe barrel size

7023596 (HPD10K)
10cc syringe barrel size

7023610 (HPD30K)
30cc syringe barrel size

7023133 (DG3)
3cc syringe barrel size

7023137 (DG5)
5cc syringe barrel size

7023125 (DG10)
10cc syringe barrel size

7023134 (DG30)
30cc syringe barrel size

7023141 (DG55)
55cc syringe barrel size
Handheld, High-Pressure Dispensing Tool

The HP™ Series high-pressure dispensing tool applies RTV silicones, epoxies, medical adhesives and other thick fluids through dispensing tips as small as 0.004" in diameter. Designed to work with EFD air-powered dispensers, these tools will multiply the output of a standard 100 psi dispenser up to 7x.

Features and Benefits
- Fast, fatigue-free application of thick fluids
- Aluminum handpiece is easy to hold
- Easy tip installation/removal with built-in wrench
- Low fluid level indicator

Equalizer™ 2K Dispensing Tool

The pneumatically operated Equalizer 2K dispensing tool makes it possible to dispense accurate, repeatable amounts of 2-component materials. It is designed for use with EFD dispensers and 50mL side x side cartridges and static mixers.

Features and Benefits
- Eliminates hand fatigue associated with manual dispensers
- Ideal for pre-mixing and and downpacking from 2K cartridges into syringe barrels

Mikros™ Dispensing Pen

Minimizes waste and improves fluid control in critical applications. Working with EFD air-powered dispensers, it applies 2-part epoxies, UV-cure adhesives and other medium viscosity fluids in consistent microdot amounts. Features a disposable 0.25cc fluid reservoir tip with 30, 32 or 33 gauge stainless steel dispensing needles.

Every 0.25cc fluid reservoir tip is shipped with tip protector and piston.

---

7023590 (HP3cc)
Uses 3cc EFD syringe barrels and pistons and produces a maximum pressure of 700 psi (48.2 bar). Specify #7361055 for use with 3cc non-labeled syringe barrels.

7015289 (HP5cc)
Uses 5cc EFD syringe barrels and pistons and produces a maximum pressure of 400 psi (27.6 bar).

7012598 (HP10cc)
Uses 10cc EFD syringe barrels and pistons and produces a maximum pressure of 400 psi (27.6 bar).

7360152
Standard configuration provides accurate 50mL 1:1 and 2:1 dispensing.

7015864
Transfer Kit allows downpacking of 2K materials.

7360401
Conversion Kit allows use with 4:1 cartridges.

7015875
Kit universal stand mount 25-50 mm.

7018877 (5800MP)
Mikros pen and user’s guide included. Order reservoir tips separately.

7018879 (5800MP-SYS)
Complete system includes (1) Mikros pen; (5) each reservoir tips in sizes 30, 32, and 33 gauge; (5) loading tubes; (1) piston installation tool and users’ guide.
Seventh Edition

OPTIMUM® COMPONENTS & PRECISION DISPENSE TIPS
Optimum®

The standard in fluid dispensing

What makes EFD’s Optimum dispensing components better than the rest? Engineered Fluid Dispensing™. Each patented component has been designed as part of a complete, integrated system that improves yields and reduces costs by producing the most accurate, repeatable fluid deposits possible.

Our syringe barrels are made of a proprietary polypropylene blend that delivers exceptional clarity and dimensional stability. The unique internal design enhances fluid flow and minimizes turbulence and shear during filling and dispensing.

Matching pistons are available in six styles to ensure control for virtually any fluid in any application. When fluid is dispensed, the close tolerance wiping action eliminates waste and residue.

Syringe barrel adapters have a design that facilitates installation/ removal, and a positive safety locking action that prevents accidental disengagement.

Tip caps protect fluid with a precisely engineered venting system that prevents air from entering through the luer during installation. The gripping action of the tip cap is designed to maximize the seal and yet be easily removed by the user.

IMPORTANT SAFETY INFORMATION

All EFD disposable components, including syringe barrels, cartridges, pistons, tip caps, end caps, and dispense tips, are precision engineered for one-time use. Attempting to clean and re-use components will compromise dispensing accuracy and may increase the risk of personal injury.

Always wear appropriate protective equipment and clothing suitable for your dispensing application.

Do not exceed maximum operating pressure of 100 psi (7.0kg/cm²).

Do not heat syringe barrels or cartridges to a temperature greater than 38°C (100° F).

Dispose of components according to local regulations after one-time use.

Do not clean components with strong solvents (e.g. MEK, Acetone, THF). Cartridge retainer systems and barrel loaders should be cleaned with mild detergents only.

To prevent fluid waste, use EFD SmoothFlow™ pistons.
Syringe Barrels

EFD produces the highest quality syringe barrels and pistons in the industry. Syringe barrels and pistons are produced in our own silicone-free facilities, where they are subjected to stringent quality control inspections throughout the entire manufacturing process.

Features and Benefits

- Precision fit between syringe and piston ensures consistent fluid deposits
- Wiper piston improves fluid control, keeps fluids from dripping and eliminates waste by wiping the syringe wall clean
- Wide variety of styles and sizes
- Package labels include lot numbers for process control and traceability

---

**SYRINGE BARREL & PISTON SETS**

Each box contains one resealable bag of syringes and SmoothFlow™ pistons. Dust-free packaging.

<table>
<thead>
<tr>
<th>Size</th>
<th>MOST FLUIDS</th>
<th>UV/Light Block*</th>
<th>Opaque</th>
<th>Transparent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clear Barrels</td>
<td>White Pistons</td>
<td>Amber Barrels</td>
<td>Black Barrels</td>
</tr>
<tr>
<td>3cc</td>
<td>7012074</td>
<td>7012085</td>
<td>7012091</td>
<td>7012075</td>
</tr>
<tr>
<td>5cc</td>
<td>7012096</td>
<td>7012103</td>
<td>7012109</td>
<td>n/a</td>
</tr>
<tr>
<td>10cc</td>
<td>7012114</td>
<td>7012126</td>
<td>7012130</td>
<td>7012118</td>
</tr>
<tr>
<td>30cc</td>
<td>7012136</td>
<td>7012145</td>
<td>7012149</td>
<td>7015116</td>
</tr>
<tr>
<td>55cc</td>
<td>7012153</td>
<td>7012160</td>
<td>7012164</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Sets are available in clear for most fluids; transparent amber for UV and light-sensitive materials (*up to 550 nm*); and opaque black for complete light blockage.

LV Barrier sets include tip caps and are designed for dispensing cyanoacrylates and very low viscosity fluids.

---

**SYRINGE BARRELS**

Each box contains one resealable ESD-safe bag of syringes. Dust-free packaging.

<table>
<thead>
<tr>
<th>Size</th>
<th>MOST FLUIDS</th>
<th>UV/Light Block*</th>
<th>Opaque</th>
<th>Transparent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clear Barrels</td>
<td>White Barrels</td>
<td>Amber Barrels</td>
<td>Black Barrels</td>
</tr>
<tr>
<td>3cc</td>
<td>7012072</td>
<td>7012083</td>
<td>7012089</td>
<td>7015616</td>
</tr>
<tr>
<td>5cc</td>
<td>7012094</td>
<td>7012101</td>
<td>7012107</td>
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<tr>
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<td>7012128</td>
<td>7015618</td>
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<tr>
<td>30cc</td>
<td>7012134</td>
<td>7012143</td>
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<td>55cc</td>
<td>7012155</td>
<td>7012158</td>
<td>7012162</td>
<td>7015620</td>
</tr>
</tbody>
</table>

Note: 3cc and 55cc syringe barrels accept the same size barrel pistons, end caps and adapters. Order pistons separately.

*Transparent amber for UV- and light-sensitive materials (up to 550 nm).*

---

**BARREL DIMENSIONS**

<table>
<thead>
<tr>
<th>Size</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>3cc</td>
<td>11.1 mm (0.44&quot;)</td>
<td>73.0 mm (2.88&quot;)</td>
</tr>
<tr>
<td>5cc</td>
<td>14.3 mm (0.56&quot;)</td>
<td>68.3 mm (2.69&quot;)</td>
</tr>
<tr>
<td>10cc</td>
<td>19.1 mm (0.75&quot;)</td>
<td>88.9 mm (3.50&quot;)</td>
</tr>
<tr>
<td>30cc</td>
<td>25.4 mm (1.0&quot;)</td>
<td>115.9 mm (4.56&quot;)</td>
</tr>
<tr>
<td>55cc</td>
<td>25.4 mm (1.0&quot;)</td>
<td>173.0 mm (6.81&quot;)</td>
</tr>
</tbody>
</table>

Note: This data is typical and does not constitute a specification.
Pistons

A piston is inserted into the syringe barrel after it has been loaded with fluid to ensure uniform dispensing, prevent dripping, and eliminate waste by wiping barrel walls clean as fluid is dispensed. Available in six styles:

- **White** SmoothFlow™ wiper pistons are used with most fluids.
- **Beige** SmoothFlow pistons are loose-fitting and used with air-entrapped fluids.
- **Red** SmoothFlow pistons are tight-fitting and used with mechanical dispensers.
- **Orange** Flat-walled pistons have a looser fit to prevent “bouncing” when dispensing stringy, air-entrapped fluids.
- **Blue** LV Barrier pistons are for cyanoacrylates and very low viscosity fluids.
- **Clear** Flex pistons are flexible and reduce “bouncing” in viscous fluids while maintaining excellent wall-wiping.

End and Tip Caps

End caps and tip caps provide an airtight seal that allows you to prefill syringe barrels or seal partially used syringes between shifts.

End caps feature a precision fit and use a convenient push-button to produce a snug, air-tight seal.

Tip caps have a large knurled gripping surface that simplifies attachment, and a vent that prevents air from being introduced into the syringe barrel during installation. Available in blue or green.

Adapter Assemblies

Lightweight adapters are designed for fast attachment and feature slots that lock securely onto matching tabs on the syringe barrel.
**Dispensing Tips**

EFD produces the highest quality dispensing tips in the industry. All tips are produced in our own silicone-free facilities and subjected to stringent quality control inspections throughout the entire manufacturing process.

**Features and Benefits**
- Free of flash, burrs and contaminants
- Package labels include lot numbers for process control and traceability
- Consistent from style to style and lot to lot
- 360° SafetyLok™ thread ensures safe, positive attachment to syringe barrel
- Engineered hub flats for easy twist on, twist off

**Precision Stainless Steel** Passivated stainless steel tips handle a wide range of fluids and applications.

**Tapered** Smooth flow for application of medium- to high-viscosity fluids — especially thick or particle-filled materials like epoxies, RTVs and braze pastes.

**Flexible** Polypropylene shafts reach into hard-to-access areas and will not scratch delicate surfaces. Easily cut to size or angled as needed.

**Angled** Stainless steel tips are available with 45° and 90° bends.

**Brush** For spreading glues and greases. Available with soft or stiff bristles.

**Specialty** For specific applications: chamfered, ESD-safe, PTFE-coated and PTFE-lined, microdot tips and oval tips.

---

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Color</th>
<th>ID</th>
<th>OD</th>
<th>Straight 6.35 mm (0.25&quot;)</th>
<th>Straight 12.7 mm (0.50&quot;)</th>
<th>Straight 25.4 mm (1.0&quot;)</th>
<th>Straight 38.1 mm (1.5&quot;)</th>
<th>45° Bend 12.7 mm (0.5&quot;)</th>
<th>90° Bend 12.7 mm (0.5&quot;)</th>
<th>45° Bend 38.1 mm (1.5&quot;)</th>
<th>Qty/ Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Olive</td>
<td>1.54</td>
<td>0.060</td>
<td>1.83 0.072 7018029</td>
<td>7018043</td>
<td>7018032</td>
<td>7018035</td>
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<tr>
<td>15</td>
<td>Amber</td>
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<td>7018070</td>
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<td>7016910</td>
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<tr>
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<td>7018274</td>
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<tr>
<td>23</td>
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<td>0.33</td>
<td>0.013</td>
<td>0.65 0.025 7018302</td>
<td>7018314</td>
<td>7018305</td>
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<td>25</td>
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<td>7018345</td>
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<td>7018339</td>
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<tr>
<td>27</td>
<td>Clear</td>
<td>0.20</td>
<td>0.008</td>
<td>0.42 0.016 7018395</td>
<td>7005008</td>
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<td>n/a</td>
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<tr>
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<td>7018433</td>
<td>n/a</td>
<td>n/a</td>
<td>7018434</td>
<td>7018435</td>
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<td>50</td>
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<tr>
<td>32</td>
<td>Yellow</td>
<td>0.10</td>
<td>0.004</td>
<td>0.24 0.009 7018462</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>50</td>
</tr>
</tbody>
</table>

Passivated stainless steel dispensing tips with polypropylene SafetyLok hubs for a secure fit to barrel reservoirs.

- 6.35 mm (0.25") tips: Fast point-to-point dispensing.
- 12.7 mm (0.50") tips: Standard all-around precision dispensing tips.
- 45° and 90° bent tips: Easy access into hard-to-reach areas.
# PRECISION DISPENSING TIPS

## SMOOTHFLOW TAPERED TIPS

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Color</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Olive</td>
<td>1.60</td>
</tr>
<tr>
<td>16</td>
<td>Grey</td>
<td>1.19</td>
</tr>
<tr>
<td>18</td>
<td>Green</td>
<td>0.84</td>
</tr>
<tr>
<td>20</td>
<td>Pink</td>
<td>0.58</td>
</tr>
<tr>
<td>22</td>
<td>Blue</td>
<td>0.41</td>
</tr>
<tr>
<td>25</td>
<td>Red</td>
<td>0.25</td>
</tr>
<tr>
<td>27</td>
<td>Clear</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Use with gel cyanoacrylates, UV-cure adhesives, sealants, and particle-filled materials or any medium- to high-viscosity fluid. Standard, flexible translucent tips are molded of polyethylene and contain a light-blocking additive that protects UV-sensitive fluids. Rigid opaque tips are molded of polypropylene and the opacity of the material delivers light-blocking functionality to protect light-sensitive fluids. Standard tapered tips are recommended for best results.

## FLEXIBLE TIPS

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Color</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Amber</td>
<td>1.25</td>
</tr>
<tr>
<td>18</td>
<td>Green</td>
<td>0.84</td>
</tr>
<tr>
<td>20</td>
<td>Pink</td>
<td>0.48</td>
</tr>
<tr>
<td>25</td>
<td>Red</td>
<td>0.36</td>
</tr>
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</table>

Flexible polypropylene tubing for application into difficult-to-access areas. Easily drags along edges and around corners and prevents scratching. Tubing can be cut to length.

## PTFE-COATED TIPS

<table>
<thead>
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<th>Gauge</th>
<th>Color</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
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<tr>
<td>22</td>
<td>Blue</td>
<td>0.41</td>
</tr>
<tr>
<td>23</td>
<td>Orange</td>
<td>0.33</td>
</tr>
<tr>
<td>25</td>
<td>Red</td>
<td>0.25</td>
</tr>
</tbody>
</table>

controls wicking to stop drips in optical media applications.

## PTFE-LINED TIPS

<table>
<thead>
<tr>
<th>Color</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grey</td>
<td>0.50</td>
</tr>
<tr>
<td>Pink</td>
<td>0.30</td>
</tr>
</tbody>
</table>

Resists clogging of cyanoacrylates. Use for microdot application of low viscosity fluids.

## CHAMFERED TIPS

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Color</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Green</td>
<td>0.84</td>
</tr>
<tr>
<td>20</td>
<td>Pink</td>
<td>0.61</td>
</tr>
<tr>
<td>22</td>
<td>Blue</td>
<td>0.41</td>
</tr>
<tr>
<td>23</td>
<td>Orange</td>
<td>0.33</td>
</tr>
<tr>
<td>25</td>
<td>Red</td>
<td>0.25</td>
</tr>
<tr>
<td>27</td>
<td>Clear</td>
<td>0.20</td>
</tr>
<tr>
<td>33</td>
<td>Black</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Use for microdot application of low viscosity fluids. Black is ESD-safe.

## BRUSH TIPS

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>soft bristle</td>
<td>7022730</td>
</tr>
<tr>
<td>stiff bristle</td>
<td>7015351</td>
</tr>
</tbody>
</table>

Spread glues and greases. Nylon bristles.

## OVAL TIPS

<table>
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<tr>
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<th>Color</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Amber</td>
<td>1.25</td>
</tr>
<tr>
<td>18</td>
<td>Green</td>
<td>0.84</td>
</tr>
<tr>
<td>23</td>
<td>Orange</td>
<td>0.33</td>
</tr>
</tbody>
</table>

Flat ribbon deposits of thick pastes, sealants & epoxies.

## TIP SHIELDS

<table>
<thead>
<tr>
<th>Size</th>
<th>Color</th>
<th>Part #</th>
</tr>
</thead>
<tbody>
<tr>
<td>3cc</td>
<td>Black</td>
<td>7017715</td>
</tr>
<tr>
<td>5cc to 55cc</td>
<td>Black</td>
<td>7017717</td>
</tr>
</tbody>
</table>

Reusable tip shields for light-sensitive and UV-cure adhesives. Fits over dispensing tip hub.

## POLYETHYLENE NOZZLES

<table>
<thead>
<tr>
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<th>length</th>
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<tbody>
<tr>
<td>0.318</td>
<td>0.125</td>
</tr>
<tr>
<td>0.318</td>
<td>0.125</td>
</tr>
</tbody>
</table>

Polyethylene nozzles thread into all cartridge sizes and 725 Series and 736HPA-NV valves. 1/4 NPT (6.35 mm) thread.

## METAL NOZZLES

<table>
<thead>
<tr>
<th>Gauge</th>
<th>ID</th>
<th>Part #</th>
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<tbody>
<tr>
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<td>3.8</td>
<td>7014650</td>
</tr>
<tr>
<td>8</td>
<td>3.4</td>
<td>7014651</td>
</tr>
<tr>
<td>10</td>
<td>2.7</td>
<td>7014648</td>
</tr>
<tr>
<td>12</td>
<td>2.2</td>
<td>7014642</td>
</tr>
<tr>
<td>14</td>
<td>1.6</td>
<td>7014644</td>
</tr>
<tr>
<td>16</td>
<td>1.2</td>
<td>7014646</td>
</tr>
</tbody>
</table>

38.1 mm (1 1/2") long metal nozzles with 1/4 NPT to fit 725 Series and 736HPA-NV valves.
### DISPENSING TIPS

<table>
<thead>
<tr>
<th>Applications</th>
<th>Tapered</th>
<th>Stainless Steel</th>
<th>PTFE-Lined</th>
<th>Flexible</th>
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<tbody>
<tr>
<td>Very Low Viscosity Fluids</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particle-Filled Pastes</td>
<td></td>
<td>●</td>
<td>▲</td>
<td>X</td>
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<tr>
<td>Microlot Deposits</td>
<td>X</td>
<td>●</td>
<td>▲</td>
<td></td>
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<tr>
<td>Fluid is Reactive to Metal</td>
<td>●</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Depositing in Recesses</td>
<td>▲</td>
<td>●</td>
<td>●</td>
<td>▲</td>
</tr>
<tr>
<td>Spreading/Smearing</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>▲</td>
</tr>
<tr>
<td>Fast-Curing Glues</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Beading, Striping</td>
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<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Easily Scratched Substrates</td>
<td>●</td>
<td>●</td>
<td>●</td>
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### Fluids

<table>
<thead>
<tr>
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<th>Flexible</th>
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<td>●</td>
<td>●</td>
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<tr>
<td>Anaerobics</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Conformal Coatings</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Cyanoacrylates</td>
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<td>●</td>
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<tr>
<td>Gel Cyanoacrylates</td>
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<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Epoxies</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
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<tr>
<td>Greases</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Light-Cure Adhesives</td>
<td>●</td>
<td>●</td>
<td><em>▲</em>*</td>
<td>X</td>
</tr>
<tr>
<td>Oils</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>▲</td>
</tr>
<tr>
<td>Paints</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>▲</td>
</tr>
<tr>
<td>Sealants</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>X</td>
</tr>
<tr>
<td>Silver Epoxy</td>
<td>X</td>
<td>●</td>
<td><em>▲</em>*</td>
<td>X</td>
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<tr>
<td>Solder Paste/Braze Pastes</td>
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<td>●</td>
<td>●</td>
<td>X</td>
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<tr>
<td>Solder Masks</td>
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<td>●</td>
<td>X</td>
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<tr>
<td>Solvents</td>
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<td>●</td>
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<tr>
<td>UV-Cure Adhesives</td>
<td>●*</td>
<td><em>▲</em>*</td>
<td><em>▲</em>*</td>
<td>▲</td>
</tr>
</tbody>
</table>

*OK if used with tip shield, part #7017715 or 7017717.
*Chamfered tips are recommended for best results.
**Standard tapered tips are recommended for best results.

### Key

- ● Recommended
- ▲ Satisfactory
- X Do not use
Cartridge Systems

Optimum cartridges and retainers have been designed to function as a complete, integrated system that improves yields and reduces costs in fluid packaging and dispensing processes.

Cartridge systems are designed for applications that require a reservoir larger than a 55cc syringe barrel. They are available in 2.5 fl oz, 6 fl oz, 12 fl oz, 20 fl oz and 32 fl oz capacities, and can be used to make timed or visual deposits.

Features and Benefits
- Exceptional clarity to allow visual confirmation of fluid levels
- High-impact strength and dimensional stability
- ZeroDraft™ design ensures that internal diameter is consistent from top to bottom
- Excellent chemical compatibility with a wide range of fluids
- Available in clear, black, amber and green

### Clear Cartridges

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012389</td>
<td>2.5 fl oz (75 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7012398</td>
<td>6 fl oz (180 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7012407</td>
<td>12 fl oz (360 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7012416</td>
<td>20 fl oz (600 ml)</td>
<td>10</td>
</tr>
<tr>
<td>7014088</td>
<td>32 fl oz (960 ml)</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012392</td>
<td>2.5 fl oz (75 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012401</td>
<td>6 fl oz (180 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012410</td>
<td>12 fl oz (360 ml)</td>
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<td>7012417</td>
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<td>100</td>
</tr>
<tr>
<td>7014092</td>
<td>32 fl oz (960 ml)</td>
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### Amber Cartridges

<table>
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</tr>
</thead>
<tbody>
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<td>7012390</td>
<td>2.5 fl oz (75 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7012399</td>
<td>6 fl oz (180 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7012408</td>
<td>12 fl oz (360 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7012736</td>
<td>20 fl oz (600 ml)</td>
<td>10</td>
</tr>
<tr>
<td>7014089</td>
<td>32 fl oz (960 ml)</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012393</td>
<td>2.5 fl oz (75 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012402</td>
<td>6 fl oz (180 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012411</td>
<td>12 fl oz (360 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012737</td>
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<td>100</td>
</tr>
<tr>
<td>7014093</td>
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### Black Cartridges

<table>
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<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012391</td>
<td>2.5 fl oz (75 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7012400</td>
<td>6 fl oz (180 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7012409</td>
<td>12 fl oz (360 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7013878</td>
<td>20 fl oz (600 ml)</td>
<td>10</td>
</tr>
<tr>
<td>7014091</td>
<td>32 fl oz (960 ml)</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012394</td>
<td>2.5 fl oz (75 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012403</td>
<td>6 fl oz (180 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012412</td>
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<td>7013879</td>
<td>20 fl oz (600 ml)</td>
<td>100</td>
</tr>
<tr>
<td>7014095</td>
<td>32 fl oz (960 ml)</td>
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</table>

### Green Cartridges

<table>
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<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7014167</td>
<td>2.5 fl oz (75 ml)</td>
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</tr>
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<td>7014170</td>
<td>6 fl oz (180 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7014173</td>
<td>12 fl oz (360 ml)</td>
<td>25</td>
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<tr>
<td>7014176</td>
<td>20 fl oz (600 ml)</td>
<td>10</td>
</tr>
<tr>
<td>7014090</td>
<td>32 fl oz (960 ml)</td>
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</tr>
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<table>
<thead>
<tr>
<th>Part #</th>
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<tbody>
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<td>7014171</td>
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<td>250</td>
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<tr>
<td>7014174</td>
<td>12 fl oz (360 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7014177</td>
<td>20 fl oz (600 ml)</td>
<td>100</td>
</tr>
<tr>
<td>7014094</td>
<td>32 fl oz (960 ml)</td>
<td>100</td>
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</table>
### CARTRIDGE DIMENSIONS

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<thead>
<tr>
<th>Size</th>
<th>A</th>
<th>B</th>
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</thead>
<tbody>
<tr>
<td>2.5 fl oz (75 ml)</td>
<td>43.2 mm (1.70&quot;)</td>
<td>98.8 mm (3.89&quot;)</td>
</tr>
<tr>
<td>6 fl oz (180 ml)</td>
<td>43.2 mm (1.70&quot;)</td>
<td>181.5 mm (7.15&quot;)</td>
</tr>
<tr>
<td>12 fl oz (360 ml)</td>
<td>43.2 mm (1.70&quot;)</td>
<td>314.3 mm (12.38&quot;)</td>
</tr>
<tr>
<td>20 fl oz (600 ml)</td>
<td>68.3 mm (2.69&quot;)</td>
<td>249.7 mm (9.83&quot;)</td>
</tr>
<tr>
<td>32 fl oz (960 ml)</td>
<td>68.3 mm (2.69&quot;)</td>
<td>346.4 mm (13.69&quot;)</td>
</tr>
</tbody>
</table>

Note: This data is typical and does not constitute a specification.

---

### CARTRIDGES WITH PISTONS INSTALLED

#### Clear Cartridges with Pistons Installed

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012395</td>
<td>2.5 fl oz (75 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012404</td>
<td>6 fl oz (180 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012413</td>
<td>12 fl oz (360 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012418</td>
<td>20 fl oz (600 ml)</td>
<td>100</td>
</tr>
<tr>
<td>7014096</td>
<td>32 fl oz (960 ml)</td>
<td>100</td>
</tr>
</tbody>
</table>

#### Amber Cartridges with Pistons Installed

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012396</td>
<td>2.5 fl oz (75 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012405</td>
<td>6 fl oz (180 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012414</td>
<td>12 fl oz (360 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012738</td>
<td>20 fl oz (600 ml)</td>
<td>100</td>
</tr>
<tr>
<td>7014097</td>
<td>32 fl oz (960 ml)</td>
<td>100</td>
</tr>
</tbody>
</table>

#### Black Cartridges with Pistons Installed

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012397</td>
<td>2.5 fl oz (75 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012406</td>
<td>6 fl oz (180 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012415</td>
<td>12 fl oz (360 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7013880</td>
<td>20 fl oz (600 ml)</td>
<td>100</td>
</tr>
<tr>
<td>7014099</td>
<td>32 fl oz (960 ml)</td>
<td>100</td>
</tr>
</tbody>
</table>

#### Green Cartridges with Pistons Installed

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7014169</td>
<td>2.5 fl oz (75 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7014172</td>
<td>6 fl oz (180 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7014175</td>
<td>12 fl oz (360 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7014178</td>
<td>20 fl oz (600 ml)</td>
<td>100</td>
</tr>
<tr>
<td>7014098</td>
<td>32 fl oz (960 ml)</td>
<td>100</td>
</tr>
</tbody>
</table>
Retainer Systems

Optimum cartridge retainers are molded from high-tensile, clarified resin that permits easy visual monitoring of fluid levels. Large textured ribs provide an ergonomic grip for cap installation.

Retainer caps feature locking tabs that snap securely into detents on the retainer body with an audible click. A push-in air line connector on top of the cap eliminates the need for bayonet connectors.

<table>
<thead>
<tr>
<th>RETAINER SYSTEMS</th>
<th>Retainer Cap O-ring Kits (2/pkg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part #</td>
<td>Material</td>
</tr>
<tr>
<td>7014373</td>
<td>Buna</td>
</tr>
<tr>
<td>7026914</td>
<td>EPR</td>
</tr>
<tr>
<td>7026915</td>
<td>Viton</td>
</tr>
<tr>
<td>7014372</td>
<td>Buna</td>
</tr>
<tr>
<td>7026916</td>
<td>EPR</td>
</tr>
<tr>
<td>7026917</td>
<td>Viton</td>
</tr>
</tbody>
</table>

Note: The retainer cap O-rings are available in three different materials. Please select the one most compatible with your fluid. Standard O-ring material is Buna.
Pistons

Optimum pistons are precision molded from high-density polyethylene. The consistent fit perfectly matches cartridge walls for smooth, unobstructed travel and ensures consistent results in fluid packaging and dispensing processes.

Unique channels help dissipate air during the filling process, reducing or eliminating the need to centrifuge. Dual wiping edges eliminate waste and residue to lower production costs and simplify disposal of used cartridges.

End/Outlet Caps

End caps snap securely over cartridge flanges to prevent leaks and fluid contamination. The center push-button presses the cap against the cartridge wall to form a positive, airtight seal.

Self-venting outlet caps feature a large ribbed gripping area that simplifies manual installation, along with precision molded threads and a tapered seat that provides a snug, leakproof seal.

### PISTONS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012419</td>
<td>2.5, 6, 12 fl oz (75, 180, 360 ml)</td>
<td>25</td>
</tr>
<tr>
<td>7012421</td>
<td>20, 32 fl oz (600, 960 ml)</td>
<td>10</td>
</tr>
</tbody>
</table>

### END CAPS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Color</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012423</td>
<td>2.5, 6, 12 fl oz (75, 180, 360 ml)</td>
<td>Blue</td>
<td>25</td>
</tr>
<tr>
<td>7014475</td>
<td>2.5, 6, 12 fl oz (75, 180, 360 ml)</td>
<td>Green</td>
<td>25</td>
</tr>
<tr>
<td>7012425</td>
<td>20, 32 fl oz (600, 960 ml)</td>
<td>Blue</td>
<td>10</td>
</tr>
<tr>
<td>7014474</td>
<td>20, 32 fl oz (600, 960 ml)</td>
<td>Green</td>
<td>10</td>
</tr>
</tbody>
</table>

### OUTLET CAPS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Color</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012424</td>
<td>2.5, 6, 12 fl oz (75, 180, 360 ml)</td>
<td>Blue</td>
<td>250</td>
</tr>
<tr>
<td>7012739</td>
<td>2.5, 6, 12 fl oz (75, 180, 360 ml)</td>
<td>Green</td>
<td>250</td>
</tr>
<tr>
<td>7012426</td>
<td>20, 32 fl oz (600, 960 ml)</td>
<td>Blue</td>
<td>100</td>
</tr>
<tr>
<td>7012740</td>
<td>20, 32 fl oz (600, 960 ml)</td>
<td>Green</td>
<td>100</td>
</tr>
<tr>
<td>7012427</td>
<td>All</td>
<td>Blue</td>
<td>25</td>
</tr>
<tr>
<td>7014476</td>
<td>All</td>
<td>Green</td>
<td>25</td>
</tr>
<tr>
<td>7012428</td>
<td>All</td>
<td>Blue</td>
<td>250</td>
</tr>
<tr>
<td>7012741</td>
<td>All</td>
<td>Green</td>
<td>250</td>
</tr>
</tbody>
</table>
### CARTRIDGE FITTINGS

For both internal molded nozzle cartridges and external threaded cartridges

<table>
<thead>
<tr>
<th>Part</th>
<th>Part #</th>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>◼️◼️◼️</td>
<td>7022420</td>
<td>Nylon</td>
<td>Barrel loader fitting 90° 1/4 NPT male</td>
</tr>
<tr>
<td>◼️◼️◼️</td>
<td>7022415</td>
<td>Stainless Steel</td>
<td>Barrel loader fitting 1/4 NPT male</td>
</tr>
<tr>
<td>◼️◼️◼️</td>
<td>7017020</td>
<td>Black Polypropylene</td>
<td>Female luer lock to barrel elbow</td>
</tr>
<tr>
<td>◼️◼️◼️</td>
<td>7017014</td>
<td>Black Polypropylene</td>
<td>1/4 NPT x 3/8 compression</td>
</tr>
<tr>
<td>◼️◼️◼️</td>
<td>7014850</td>
<td>Black Polypropylene</td>
<td>1/4 NPT x 1/4 compression</td>
</tr>
</tbody>
</table>

### TIP ADAPTERS

<table>
<thead>
<tr>
<th>Part</th>
<th>Part #</th>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>◼️◼️◼️</td>
<td>7016941</td>
<td>Polypropylene</td>
<td>1/4 NPT standard cartridge tip adapter</td>
</tr>
<tr>
<td>◼️◼️◼️</td>
<td>7016945</td>
<td>Nickel-plated Brass</td>
<td>1/4 NPT special purpose tip adapter for 725D Series, 725DA Series, 725HF-SS, 736HPA-NV and cartridge</td>
</tr>
<tr>
<td>◼️◼️◼️</td>
<td>7016948</td>
<td>Black Polypropylene</td>
<td>1/4 NPT tip adapter</td>
</tr>
</tbody>
</table>

### NOZZLES

38.1 mm (1 1/2") long metal nozzles with 1/4 NPT

<table>
<thead>
<tr>
<th>Part #</th>
<th>Gauge</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>7014850</td>
<td>7</td>
<td>3.8 mm (0.150&quot;)</td>
</tr>
<tr>
<td>7014851</td>
<td>8</td>
<td>3.4 mm (0.135&quot;)</td>
</tr>
<tr>
<td>7014848</td>
<td>10</td>
<td>2.7 mm (0.106&quot;)</td>
</tr>
<tr>
<td>7014842</td>
<td>12</td>
<td>2.2 mm (0.085&quot;)</td>
</tr>
<tr>
<td>7014844</td>
<td>14</td>
<td>1.6 mm (0.063&quot;)</td>
</tr>
</tbody>
</table>

Disposable polypropylene nozzles thread into all cartridge sizes with 1/4 NPT

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>7018555</td>
<td>6.35 x 0.318 cm (2.5 x 0.125&quot;)</td>
</tr>
<tr>
<td>7018557</td>
<td>6.35 x 0.157 cm (2.5 x 0.062&quot;)</td>
</tr>
<tr>
<td>7018559</td>
<td>10.2 x 0.157 cm (4.0 x 0.062&quot;)</td>
</tr>
<tr>
<td>7018561</td>
<td>10.2 x 0.08 cm (4.0 x 0.031&quot;)</td>
</tr>
</tbody>
</table>
Precision Valve Systems

Engineered for the most demanding mechanical and environmental applications, EFD valve systems provide reliable dispensing solutions for benchtop applications, machine builders, and cost-effective, drop-in retrofit alternatives for automatic production lines.

EFD offers a wide range of valves for dispensing almost any fluid, from thin solvents to thick sealants and braze pastes—in accurate, repeatable amounts.

Our unique valve designs are exceptionally reliable and will provide tens of millions of trouble-free dispensing cycles before maintenance is required.

Features and Benefits

- Reliable, low maintenance
- Fast cycle rates allow production lines to run at optimal speed
- Engineered for the most demanding production environments
- Clean, drip-free cutoffs reduce waste, mess and cleanup
- Interactive microprocessor-based controllers simplify PLC settings and provide consistent operation
- Cost-effective replacement for older technology valves
Diaphragm Valve
752V Series

General-purpose valve is ideal for dispensing controlled amounts of most low- to medium-viscosity fluids. Wetted components are machined from inert UHMW (Ultra High Molecular Weight) polyethylene, making the 752 Series ideal for use with cyanoacrylates, anaerobic threadlockers and other reactive fluids.

Features and Benefits

- Compact size and weight
- Adjustable fluid flow control
- Positive shutoff, no seals
- Low-maintenance design

Specifications

752V-UHSS
Size: 80.7 mm length x 26.9 mm diameter (3.18” x 1.06”)
Weight: 173.6 g (6.1 oz)

752V-SS
Size: 80.7 mm length x 26.9 mm diameter (3.18” x 1.06”)
Weight: 181.4 g (6.4 oz)

752V-DVD
Size: 76.3 mm length x 26.9 mm diameter (3.00” x 1.06”)
Weight: 172.9 g (6.1 oz)

Actuating air pressure required: 70-90 psi (4.8-6.2 bar)

Maximum fluid pressure: 70 psi (4.8 bar)
Fluid inlet thread: 1/8 NPT female
Fluid outlet thread: 1/4-28 UNF

Mounting: 10-32 UNF tapped hole
Cycle rate: Exceeds 500 per minute

Air cylinder body: 752V-UHSS: 303 stainless steel
752V-SS: 303 stainless steel
752V-DVD: Aluminum, hard-coat anodized

Fluid body: UHMW® polyethylene, FDA approved

Fluid body options:
Acetal, 303 stainless steel, PTFE

Piston and piston rod: 303 stainless steel
Tip adapter: Polypropylene

Diaphragm: UHMW® polyethylene, FDA approved

Diaphragm option: PTFE

Wetted parts: Fluid body, diaphragm, tip adapter

All stainless steel parts are passivated.

*UHMW—Ultra High Molecular Weight polyethylene

For use with:
- Activators
- Anaerobics
- Cyanoacrylates
- Fluxes
- Solvents
- UV-cure & Light-cure Adhesives
Mini-diaphragm Valve
702 Series

60% smaller and 70% lighter than typical dispense valves, the 702 Series is ideal for applications where space is tight or installation on movable arms where size and weight must be considered.

The 702M-SS applies consistent, precise deposits of dye, UV-cure lacquers and UV-cure adhesives in the optical media industry.

The 702V is designed for drip-free coating and consistent shot-to-shot bonding of UV-cure adhesives in the optical media industry.

Features and Benefits
- Unique design eliminates trapped air and bubbles
- Tamper-resist stroke adjustments
- Quick, clean cutoff eliminates drips
- Faster throughput

For use with:
- UV-cure
- Adhesives
- UV-cure
- Lacquers
- Resins
- Coatings
- Solvents
- Dyes

7020679
(702M-SS Valve)
For optical media applications. Air cylinder body and fluid body are made of passivated 303 stainless steel. UHMW diaphragm. Includes sample tip kit of PTFE-coated tips, (4) each of 21 and 25 gauge.

7020683
(702V-SS Valve)
For general industry applications. Air cylinder body and fluid body are made of passivated 303 stainless steel. UHMW diaphragm. Includes 1.5 m (5 ft) input air hose with male quick-connect and fluid inlet fitting, #7020671.

7020680
(702V-A Valve)
For dispensing UV cure, anaerobics, and certain cyanoacrylates. Fluid body is acetal copolymer with a 303 stainless steel air cylinder body. UHMW diaphragm. Acetal copolymer wetted parts are preferred when dispensing UV-cure adhesives, anaerobics, cyanoacrylates, and other fluids that might otherwise react when in contact with stainless steel. Includes 1.5 m (5 ft) input air hose with male quick-connect and fluid inlet fitting, #7020677.

Specifications
Size: 63.5 mm length x 19.1 mm diameter  
(2.50” x 0.75”)
Weight (less fittings): 49.3 g (1.74 oz)
Actuating air pressure required: 70-90 psi (4.8-6.2 bar)
Maximum fluid pressure: 70 psi (4.8 bar)
Fluid inlet thread: M5 x 0.8
Mounting: Adjustable mounting block (#7020507)
Cycle rate: Exceeds 500 per minute
Air cylinder body: 303 stainless steel
Fluid body: 303 stainless steel
Piston: 303 stainless steel
Diaphragm: FDA approved UHMW* polyethylene or PTFE.
Consult Nordson EFD for part number.
Tip retaining nut: Aluminum
All stainless steel parts are passivated.

*Ultra High Molecular Weight polyethylene
High Flow Diaphragm Valve
752HF Series

The 752HF valve system is specifically designed for precise dispensing of UV-cure resins and similar fluids used in media manufacturing of Blu-Ray DVDs, DVDs and CDs. Unrestricted material flow reduces turbulence and the formation of micro bubbles.

Features and Benefits

- High-flow capability for thicker UV-cure coatings
- Valve open time as short as 15 milliseconds
- Positive shutoff, no seals
- Compact and lightweight

Specifications

Size: 77.3 mm length x 28.6 mm diameter (3.04” x 1.13”)
Weight (less fittings):
752HF-A: 81 g (2.85 oz)
752HF-SS: 123 g (4.30 oz)
Actuating air pressure required:
70-90 psi (4.8-6.2 bar)
Maximum fluid pressure:
70 psi (4.8 bar)
Fluid inlet thread:
1/8-27 NPT
Mounting:
(1) M5 x 0.8
Cycle rate: Exceeds 500 per minute
Air cylinder body: Aluminum, hard-coat anodized
Fluid body:
752HF-A: Acetal copolymer
752HF-SS: 303 stainless steel
Piston: 303 stainless steel
Diaphragm: UHMW* polyethylene, FDA approved
Tip retaining nut: Aluminum

All stainless steel parts are passivated.

*UHMW—Ultra High Molecular Weight polyethylene

For use with:
UV-cure Adhesives
Resins
UV Coatings

The ValveMate 8000 controller allows for easy on the fly deposit control of the 752HF Series valves. Refer to page 52.

7014139
(752HF-A Valve)
Air cylinder body assembly and tamper-resist stroke reference knob are hard-coat anodized aluminum. Acetal copolymer fluid body and UHMW* diaphragm. Includes fluid inlet fittings #7021499 and #7007038.

7014315
(752HF-SS Valve)
Same as 752HF-A except fluid body is passivated 303 stainless steel.

*UHMW—Ultra High Molecular Weight polyethylene

www.nordsonefd.com info@nordsonefd.com USA & Canada 800-556-3484 Europe +44 (0) 1582 666334 Asia +86 (21) 3866 9006

35
Aseptic Valve
754V Series

The 754V aseptic valve features a smooth fluid flow path that is free of any entrapment areas. FDA-compliant wetted parts are made of 316L stainless steel and PTFE, making the valve suitable for CIP (Clean-In-Place) and SIP (Sterilize-In-Place) processes.

Features and Benefits
- Accurate, consistent shot size
- Clean cutoff eliminates drips
- Diaphragm life exceeds $1 \times 10^8$
- Positive shutoff, no seals

Use the ValveMate 8000 controller with the 754V valve for precise, repeatable output. See page 52.

7021514
(754V-SS Valve)
Wetted components are made of 316L stainless steel and PTFE, to conform to biopharmaceutical regulations. Internal threads have been removed to provide a smooth, easily cleaned fluid flow path, free of entrapped areas. Fluid body is electro-polished to increase corrosion resistance.

754V valve includes 1.5 m (5 ft) input air hose with male quick-connect, barbed fluid inlet fitting, polypropylene tip adapter, and dispensing tip kit.

Specifications
- Size: 77.5 mm length x 26.9 mm diameter (3.05” x 1.06”)
- Weight: 193.3 g (6.82 oz)
- Actuating air pressure required: 70-90 psi (4.8-6.2 bar)
- Maximum fluid pressure: 70-90 psi (4.8-6.2 bar)
- Fluid inlet thread: 5/16-24 UNF
- Fluid outlet thread: Male luer lock
- Mounting: None
- Cycle rate: Exceeds 500 per minute
- Air cylinder body: 316L stainless steel
- Fluid body: 316L stainless steel
- Piston and piston rod: 316L stainless steel
- Tip adapter: Integrated, threadless
- Diaphragm: PTFE
- Wetted parts: Fluid body, diaphragm, tip adapter

For use with:
- Saline Solutions
- Optical Monomers
- Pill Coating
- Solvents
- Vial Filling
- Food Processing
# Piston Valve

## 725D Series

The 725D Series valve systems consistently dispense a wide range of medium to thick fluids, including greases and silicones.

The 725DA-SS provides stroke adjustment for both fluid flow and snuff-back control. The 725D-SS version is non-adjustable and provides fixed stroke travel.

### Features and Benefits
- Positive shutoff
- Excellent chemical resistance
- End-of-cycle snuff-back
- Diaphragm life exceeds 50 million cycles

## Specifications

<table>
<thead>
<tr>
<th>725DA-SS (stroke adjustment)</th>
<th>725D-SS (fixed stroke travel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: 152.4 mm length x 29.5 mm diameter (6.00&quot; x 1.16&quot;)</td>
<td>Size: 127 mm length x 28.4 mm diameter (5.00&quot; x 1.12&quot;)</td>
</tr>
<tr>
<td>Weight: 326 g (11.5 oz)</td>
<td>Weight: 279 g (9.85 oz)</td>
</tr>
<tr>
<td>Actuating air pressure required: 70-90 psi (4.8-6.2 bar)</td>
<td>Actuating air pressure required: 70-90 psi (4.8-6.2 bar)</td>
</tr>
<tr>
<td>Maximum input fluid pressure: 100 psi (7.0 bar)</td>
<td>Maximum input fluid pressure: 100 psi (7.0 bar)</td>
</tr>
<tr>
<td>Fluid inlet thread: 1/8 NPT female</td>
<td>Fluid inlet thread: 1/8 NPT female</td>
</tr>
<tr>
<td>Fluid outlet: 1/4 NPT female</td>
<td>Fluid outlet: 1/4 NPT female</td>
</tr>
<tr>
<td>Mounting: (1) 1/8 NPT female blind hole or adjustable mounting block</td>
<td>Mounting: (1) 1/8 NPT female blind hole or adjustable mounting block</td>
</tr>
<tr>
<td>Air cylinder body: Aluminum, hard-coat anodized</td>
<td>Air cylinder body: Aluminum, hard-coat anodized</td>
</tr>
<tr>
<td>Fluid body: 303 stainless steel</td>
<td>Fluid body: 303 stainless steel</td>
</tr>
<tr>
<td>Piston: Aluminum, hard-coat anodized</td>
<td>Piston: Aluminum, hard-coat anodized</td>
</tr>
<tr>
<td>Spring: Stainless steel</td>
<td>Spring: Stainless steel</td>
</tr>
<tr>
<td>Sealing head/diaphragm: UHMW* polymer, FDA-approved</td>
<td>Sealing head/diaphragm: UHMW* polymer, FDA-approved</td>
</tr>
</tbody>
</table>

*Ultra High Molecular Weight polyethylene

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For use with:

- Braze Pastes
- Epoxies
- Greases
- Solder Resists
- Paste Fluxes
- RTV/Sealants

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7021014

(725DA-SS Valve)

Adjustable piston stroke provides fine-tuning of fluid flow rate and pullback volume. UHMW* diaphragm and sealing head. Fluid body and body cap are passivated 303 stainless steel. Includes fluid inlet fittings #7021499 and #7007038 and dispensing tip kit.

---

7021009

(725D-SS Valve)

Fluid body and body cap are passivated 303 stainless steel. UHMW* diaphragm and sealing head. Includes fluid inlet fittings #7021499 and #7007038.
High Flow Piston Valve
725HF Series

Dispenses a wide variety of fluids at rates up to 450mL/second. Use to fill small bottles, vials and foil packs with lotions, perfumes and adhesives. Also used for dispensing braze pastes and potting electrical connectors.

Features and Benefits
- FDA-compliant wetted parts
- Fully adjustable flow rates
- ±1° repeat fill tolerance
- Low-maintenance design

Specifications
725HF-SS
- Size: 108.7 mm length x 31.2 mm diameter (4.28” x 1.23”)
- Weight: 309 g (10.9 oz)
- Actuating air pressure required: 70-90 psi (4.8-6.2 bar)
- Maximum fluid pressure: 100 psi (7.0 bar)
- Fluid inlet thread: 1/4 NPT
- Fluid outlet thread: 1/4 NPT
- Mounting: (1) 5/16 UNF or adjustable mounting block
- Cycle rate: Exceeds 400 per minute
- Air cylinder body: Aluminum, hard-coat anodized
- Fluid body: 303 stainless steel or acetal copolymer
- Piston: Aluminum, hard-coat anodized
- Spring: Stainless steel
- Sealing head/diaphragm: UHMW* polymer, FDA-approved

725HF-A
- Same as 725HF-SS except wetted parts are acetal copolymer, UHMW polyethylene and PTFE-coated stainless steel.
- Includes 1.5 m (5 ft) input air hose with male quick-connect, fluid inlet fitting #7021038, tip adapter, and (2) #7018554 disposable polyethylene nozzles.

For use with:
- Adhesives
- Cosmetics
- Creams
- Greases
- Lubricants
- Inks
- Sealants

The ValveMate 8000 controller simplifies fill setup and purging of the 725HF Series valve. See page 52.
MicroDot™ Valve
xQR41 Series

The xQR41 Series MicroDot valve is a pneumatically operated, adjustable, modular valve designed to apply precise micro-deposits of low- to high-viscosity fluids.

Ideal for automated assembly processes that require small dispensing tips, the xQR41 valve provides exceptional control as well as the absolute minimum dead fluid volume. Its modular design makes it adaptable to a variety of specific applications.

Features and Benefits
- 60% smaller form factor
- QR (Quick Release) clasp for fast, easy serviceability
- Exchangeable, modular design
- Consistent microdots as small as 150 µm (0.18 mm) (0.007”) diameter
- Optional PEEK* wetted parts resist curing from reactive adhesives

BackPack™ Valve Actuator

The BackPack Valve Actuator mounted on the air cylinder of the xQR41 Series valve maintains constant pressure at the actuating air inlet, for faster response time without the risk of process variations due to a fluctuating plant air supply or different air line lengths.

- High-speed cycle capability. Cycle rates exceed 60-80Hz
- Actuation speed as low as 5-6 milliseconds
- Smaller deposit size capability due to faster valve actuation speed
- Improves process variation for better dot-to-dot consistency

BackPack is available preinstalled on new valves, or can be ordered separately (#7015581) to retrofit existing valves.

Specifications
Size: 66 mm length x 23.7 mm diameter (2.60” x 0.930”)
Weight: 141.35 g (5.0 oz)
Actuating air pressure required: 4.8–6.2 bar (70–90 psi)
Maximum fluid pressure: 6.9 bar (100 psi)
Fluid inlet thread: M5
Fluid outlet: Luer taper with retaining nut
Mounting: M4 (BackPack actuator or Mounting Block)
Cycle rate: Exceeds 400 per minute
Air cylinder body: 303 stainless steel
Fluid body: 303 stainless steel or PEEK
Piston: 303 stainless steel
Needle: Nickel- / PTFE-coated 17/4 stainless steel or PEEK
SafetyLok™ collar: Aluminum, hard-coat anodized

The ValveMate 8000 controller can control up to (4) xQR41 Series valves to optimize production line efficiency. Refer to page 52.

For use with:
- Anaerobics
- Cyanoacrylates
- Epoxies
- Fluxes
- Lubricants
- Primers
- Silicone Oils
- Solvents
- UV/Light-cure
- Adhesives

Note: All stainless steel parts are passivated.
*Polyetheretherketone

Part # Description
7360817 Includes adjustable stroke control
7361761 Includes adjustable stroke control and PEEK wetted parts
7360821 Includes adjustable stroke control and bullet-end needle
7360819 Includes non-adjustable cap
7361762 Includes non-adjustable cap and PEEK wetted parts

Part # Description
7360824 Includes adjustable stroke control
7361763 Includes adjustable stroke control and PEEK wetted parts
7360823 Includes adjustable stroke control and bullet-end needle
7360825 Includes non-adjustable cap
7361764 Includes non-adjustable cap and PEEK wetted parts

Note: All stainless steel parts are passivated.
MicroDot™ Valve
741MD-SS

The MicroDot valve is a pneumatically operated adjustable needle valve designed to apply very precise deposits down to fractions of a microliter. Ideal for automated assembly processes, the 741MD-SS valve has an adjustable needle stroke with a unique calibration feature that allows the user to maintain exact deposit size.

Features and Benefits
- Zero dead fluid volume
- Easy calibration; short setup time
- Consistent microdots as small as 0.18 mm (0.007") diameter
- Unaffected by entrapped air in fluids

Specifications
- Size: 127.5 mm length x 26.9 mm diameter (5.02" x 1.06")
- Weight: 251 g (9.0 oz)
- Actuating air pressure required: 70-90 psi (4.8-6.2 bar)
- Maximum fluid pressure: 100 psi (7.0 bar)
- Fluid inlet thread: 1/8 NPT female
- Fluid outlet: Luer taper with retaining nut
- Mounting: 1/4-28 UNF tapped hole
- Cycle rate: Exceeds 400 per minute

For use with:
- Epoxies
- Lubricants
- Marking Inks
- Solvents
- UV-cure & Light-cure
- Adhesives

The ValveMate 8000 allows you to increase or decrease valve open time on the 741MD-SS valve in increments as small as 0.001 seconds. See page 52.
NEEDLE VALVES

Needle Valve
741V Series

Precision needle valve applies low-viscosity fluids in accurate, repeatable amounts. Because the stainless steel needle seats in the tip adapter, there is virtually no dead fluid volume between shots.

Features and Benefits
• Low-maintenance design
• Zero dead fluid volume
• Positive shutoff

Specifications
Size: 114.6 mm length x 26.9 mm diameter (4.51" x 1.06")
Weight: 317.5 g (11.2 oz)
Actuating air pressure required: 70-90 psi (4.8-6.2 bar)
Maximum input fluid pressure: 300 psi (20.7 bar)
Fluid inlet thread: 1/8 NPT female
Fluid outlet: Male luer lock
Mounting: 1/4-28 UNF tapped hole
Cycle rate: Exceeds 400 per minute
Air cylinder body: 303 stainless steel
Fluid body: 303 stainless steel
Piston: 303 stainless steel
Needle: 303 stainless steel
Tip adapter/needle seat: 303 stainless steel
SafetyLok™ collar: Nylon
Needle packings: PTFE

Note: All stainless steel parts are passivated.

For use with:
• Accelerators
• Marking Inks
• Silicone Oils
• Solvents
• UV-cure Adhesives

The ValveMate 8000 controller can control up to (4) 741V Series valves to optimize production line efficiency. Refer to page 52.

7007029
(741V-SS Valve)
Air cylinder and fluid body is passivated 303 stainless steel. Includes fluid inlet fittings #7021499 and #7007038.

7021239
(741V-SS-TR Valve)
Same as 741V-SS but tamper resistant.

7015584
(741V-SS-BP Valve)
Air cylinder and fluid body is passivated 303 stainless steel. Includes fluid inlet fittings and BackPack valve actuator #7015581.

For use with:
• Accelerators
• Marking Inks
• Silicone Oils
• Solvents
• UV-cure Adhesives

For use with:
• Accelerators
• Marking Inks
• Silicone Oils
• Solvents
• UV-cure Adhesives

www.nordsonefd.com   info@nordsonefd.com   USA & Canada 800-556-3484   Europe +44 (0) 1582 666334   Asia +86 (21) 3866 9006

BACKPACK™ VALVE ACTUATOR

The BackPack Valve Actuator mounted on the air cylinder of the 741V Series valve maintains constant pressure at the actuating air inlet, for faster response time without the risk of process variations due to a fluctuating plant air supply or different air line lengths.

• High-speed cycle capability. Cycle rates exceed 60-80Hz
• Actuation speed as low as 5-6 milliseconds
• Smaller deposit size capability due to faster valve actuation speed
• Improves process variation for better dot-to-dot consistency

BackPack is available preinstalled on new valves, or can be ordered separately (#7015581) to retrofit existing valves.
High Pressure Valve
736HPA-NV

Stainless steel balanced spool valve applies uniform amounts of thick materials like greases and silicones at pressures up to 2,500 psi (172 bar).

To keep dots and lines consistent and prevent drooling between shots, the 736HPA-NV valve uses an adjustable stroke control to regulate opening surge and closing snuff-back.

Features and Benefits
- Opening surge control
- Adjustable snuff-back cutoff
- Auxiliary air inlet air-assist closure
- Cycle rate exceeds 400/minute

Specifications
- Size: 134.4 mm length x 35.1 mm diameter (5.29” x 1.38”)
- Weight (less fittings): 544 g (19.2 oz)
- Actuating air pressure required: 70-90 psi (4.8-6.2 bar)
- Maximum fluid pressure: 2,500 psi (172 bar)
- Fluid inlet thread: 1/4 NPT female
- Mounting: (1) 5/16-24 UNF tapped hole or adjustable mounting block
- Cycle rate: Exceeds 400 per minute
- Air cylinder body: 303 stainless steel
- Fluid body and outlet cap: 303 stainless steel
- Piston: Aluminum, hard-coat anodized
- Spool: Stainless, hard chrome coated
- Spool seals: Polyester elastomer
- Wetted parts: Spool, seal, fluid body, body cap

All stainless steel parts are passivated.
Auger Valve
794 Series

The 794 auger valve uses screw feed technology with precision time and pressure controls to dispense accurate, repeatable amounts of particle-filled materials.

The 794 auger valve is available with two motor types. Brush motors are best for lines and stripes and deposit cycle rates under 60-90 shots per minute. Brushless motors are best for high-speed, high cycle rate microdot applications.

Features and Benefits

- Adjustable auger speed
- Two motor types—brush or brushless
- Fixed head version for lines and stripes
- Sliding head/footed tip version maintains consistent dispense gap when dispensing on surfaces with irregular height.
Radial Spinner System
7860C-RS Air Motor Bracket Assembly

The radial spinner system applies consistent amounts of adhesives, lubricants and other production fluids inside cylindrical parts between 10.2 mm (0.4”) and 127 mm (5”) in diameter.

The system combines a compact air-driven motor with a low-maintenance EFD dispense valve and ValveMate™ controller. The valve dispenses a precisely metered amount of fluid onto a spinning disk attached to the motor. As fluid reaches the edge of the disk, it spins off, forming a neat band inside the part.

Features and Benefits
• Applies correct amount on every part
• Applies material in correct location
• Eliminates waste, mess and rework
• Operates in vertical or horizontal position

For use with:
- Anaerobics
- Cyanoacrylates
- Silicone Gels
- Lubricants
- Solvents

7021798
(7860C-RS)
Radial spinner motor/bracket assembly. Includes all hoses, #7021844 tip kit and #7021448 rotating luer lock tip adapter.

7021795
(7860C)
Radial spinner air motor only.

*Note: Valves purchased separately. We recommend 752V Series Diaphragm Valves for use with the Radial Spinner System.

7029739
(7160RA Radial System Controller)
Accessories included with each ValveMate 7160RA controller: Input air hose and fittings, five micron filter regulator with air lubricator, universal mounting bracket and power cord.

RADIAL SPINNER/DISC ASSEMBLIES

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7021842</td>
<td>7880-9MM: 9 mm (0.354”) radial spinner/disc</td>
</tr>
<tr>
<td>7021836</td>
<td>7880-12MM: 12 mm (0.473”) radial spinner/disc</td>
</tr>
<tr>
<td>7021838</td>
<td>7880-15MM: 15 mm (0.590”) radial spinner/disc</td>
</tr>
<tr>
<td>7021840</td>
<td>7880-19MM: 19 mm (0.745”) radial spinner/disc</td>
</tr>
</tbody>
</table>

DISPENSING TIPS

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7021846</td>
<td>18 gauge needle – 30 degree bend 20/box</td>
</tr>
<tr>
<td>7021848</td>
<td>21 gauge needle – 30 degree bend 20/box</td>
</tr>
<tr>
<td>7021850</td>
<td>23 gauge needle – 30 degree bend 20/box</td>
</tr>
<tr>
<td>7021844</td>
<td>Tip kit: Includes (2) each of 18, 21 and 23 gauge bent tips</td>
</tr>
<tr>
<td>7021448</td>
<td>Tip adapter: Rotating luer lock tip for 752V valve</td>
</tr>
</tbody>
</table>
General Purpose Spray Valves

781S Series

781S Series Low Volume Low Pressure (LVLP) spray systems apply consistent coatings of low- to medium-viscosity fluids exactly where needed.

Microliter to milliliter amounts can be reliably dispensed in round patterns with diameters ranging from 4.3 to 50.8 mm (0.17” to 2.0”) and in fan patterns with widths up to 165.1 mm (6.5”).

Features and Benefits

- Consistent area of coverage
- No clogging, dripping or drying out
- No overspray, no mist, no bounce
- Adjustable nozzle air

Specifications

Size: 104.6 mm length x 26.9 mm diameter (4.12” x 1.06”)
Weight: 781S-SS: 405.3 g (14.2 oz)
781S: 235.3 g (8.2 oz)
Actuating air pressure required:
70 to 90 psi (4.8-6.2 bar)
Maximum fluid pressure:
300 psi (20.7 bar)
Fluid inlet thread: 1/8 NPT female
Mounting: (1) 1/4-28 UNF tapped hole
Cycle rate: Exceeds 400 per minute
Air cylinder body:
781S-SS: 303 stainless steel
781S: Aluminum, hard-coat anodized
Fluid body:
781S-SS: 303 stainless steel
781S: Aluminum, hard-coat anodized
Air cap: 303 stainless steel
Piston: 303 stainless steel
Needle and nozzle: 303 stainless steel
Needle packings: PTFE
All stainless steel parts are passivated.

For use with:
- Activators
- Silicone
- Coatings
- Solvents
- Greases
- Inks
- Liquid Fluxes
- Oils

The ValveMate 8040 controller provides Low Volume Low Pressure air to the nozzle of the 781S Series valve for high transfer efficiency. Refer to page 51.

7007031
(781S-SS Spray Valve)
Nozzle size is 1.17 mm (0.046”) diameter. Round pattern, narrow angle. All metal parts are passivated 303 stainless steel.

7021616
(781S-SS-TR)
Same as 781S-SS, except with tamper-resist stroke.

7021615
(781S-SS-46F)
Nozzle size is 1.17 mm (.046”) diameter, fan shape. All metal parts are passivated 303 stainless steel.

7021618
(781S-SS-WF)
Same as 781S-SS-46F except wide fan pattern is 2x the width.

7021613
(781S-SS-28)
Nozzle size is 0.71 mm (0.028”) diameter. Round pattern, narrow angle. All metal parts are passivated 303 stainless steel.

7021614
(781S-SS-28F)
Nozzle size is 0.71 mm (.028") diameter, fan shape. All metal parts are passivated 303 stainless steel.

7021611
(781S-SS-14)
Nozzle size is 0.36 mm (0.014”) diameter. Round pattern, narrow angle. All metal parts are passivated 303 stainless steel.

7021612
(781S-SS-14F)
Nozzle size is 0.36 mm (0.014") diameter, fan shape. All metal parts are passivated 303 stainless steel.

7021617
(781S-SS-WA)
Same as 781S-SS except round pattern is 2x as large.
MicroSpray™ Valve
787MS-SS

The 787MS-SS precision spray valve uses Low Volume Low Pressure (LVLP) technology to produce uniform spray patterns between 3.3 mm (0.130") and 19.1 mm (0.75") in diameter.

Innovative design uses a small gauge 0.3 mm-0.1 mm (0.013”-0.004") ID disposable dispensing tip in place of a standard spray nozzle. This concentrates the LVLP air used to atomize the coating into uniform spray patterns as small as 3.3 mm (0.130") in diameter—over 30% smaller than EFD’s standard spray valve configuration.

Features and Benefits

- High transfer efficiency
- No overspray or mist
- Consistent spray pattern
- Faster throughput

TIP CENTERING GUIDE

The Tip Centering Guide ensures proper alignment of the dispensing needle in critical spray applications. Order components separately.

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7027984</td>
<td>Replacement air cap</td>
</tr>
<tr>
<td>7027985</td>
<td>Centering Guide, 27/33ga</td>
</tr>
<tr>
<td>7029405</td>
<td>Centering Guide, 23ga</td>
</tr>
<tr>
<td>7029406</td>
<td>Centering Guide, 25ga</td>
</tr>
<tr>
<td>7029407</td>
<td>Centering Guide, 30ga</td>
</tr>
<tr>
<td>7029408</td>
<td>Centering Guide, 32ga</td>
</tr>
</tbody>
</table>

Specifications

- Size: 131.6 mm length x 26.9 mm diameter (5.18” x 1.06”)
- Weight: 336 g (11.8 oz)
- Actuating air pressure required: 70 to 90 psi (4.8-6.2 bar)
- Maximum fluid pressure: 100 psi (7.0 bar)
- Fluid inlet thread: 1/8 NPT female
- Mounting: 1/4-28 UNF tapped hole
- Cycle rate: Exceeds 400 per minute
- Air cylinder body: 303 stainless steel
- Fluid body: 303 stainless steel
- Piston: 303 stainless steel
- Needle: 303 stainless steel
- Air cap: 303 stainless steel
- Free flow orifice: 33 ga (0.004”; 0.10 mm) to 23 ga (0.013”; 0.33 mm)
- Needle packings: PTFE
- Maximum operating temperature: 102°C (215°F)

All stainless steel parts are passivated.

For use with:
- Activators
- Coatings
- Inks
- Liquid Fluxes
- Oils
- Silicones
- Solvents
Recirculating Spray Marking System

781RC-SS

The 781RC MicroMark™ Recirculating Spray Marking System produces uniform round patterns and stripes from 5.0 mm to 30.4 mm (0.20" to 1.20") wide without clogging or overspray.

This unique marking system eliminates the clogging, maintenance and downtime encountered with standard marking systems by using a recirculating pump to keep pigments in suspension and a programmable air delay after each cycle to clean the spray nozzle.

This MicroMark system can be used to color-code similar components, indicate pass/fail, or show production or test status. It can be activated manually or interfaced with other systems to mark at scheduled intervals.

Features and Benefits

- No clogging, dripping or drying out
- Keep pigments in suspension
- No mist or overspray
- Consistent size and placement

For use with:

Marking Inks
Paints
Other Fluids that Separate

The complete recirculating spray marking system includes the 781RC-SS spray valve, the ValveMate 8040 controller with single in-line solenoid, recirculation pump enclosure assembly, 1-liter reservoir and all necessary air and fluid hoses with fittings. Available in two nozzle sizes. See below.

7013915
Recirculation spray valve with 0.36 mm (0.014") diameter nozzle. Round pattern, narrow angle. All metal parts are passivated 303 stainless steel.

7013769
Same as #7013915 recirculation spray valve but with 0.71 mm (0.028") diameter nozzle. Round pattern, narrow angle. All metal parts are passivated 303 stainless steel.

7023895
For fluids not requiring recirculation, select MicroMark System MM781-SYS. Includes spray valve, ValveMate 8040 controller, solenoid valve kit and 1-liter tank reservoir.

Specifications

Valve
Size: 104.6 mm length x 26.9 mm diameter
(4.12" x 1.06")
Weight: 235.3 g (8.2 oz)
Actuating air pressure required:
70 to 90 psi (4.8-6.2 bar)
Maximum fluid pressure:
300 psi (20.7 bar)
Fluid inlet thread:
1/8 NPT female
Mounting:
(1) 1/4-28 UNF tapped hole
Cycle rate:
Exceeds 400 per minute
Air cylinder body, fluid body, air cap, piston and needle and nozzle: 303 stainless steel
Needle packings:
PTFE
All stainless steel parts are passivated.

Pump Enclosure
Cabinet size:
25.4 x 20.3 x 10.2 cm
(10" x 8" x 4")
Weight:
6.5 kg (14.6 lb)
Input AC (to power supply):
100-240 VAC, 50/60Hz
Power requirements:
24 VDC, 2.0 Amp maximum

Pump
Flow capacity:
Up to 88 liters per hour
Weight:
0.4 kg (13.6 oz)
Power input:
24 VDC, 2.0 Amp maximum

Wetted materials:
Pump body: 303 stainless steel
Gears: PEEK
Gasket: PTFE
316L Stainless Steel Aseptic Spray Valve

784S-SS Series

Using Low Volume Low Pressure (LVLP) technology, the 784S-SS aseptic spray valve system accurately controls the application of most low- to medium-viscosity fluids. The 784S-SS aseptic spray valve uses a small gauge dispensing tip to produce uniform round spray patterns between 0.130” and 0.75” (3.3 mm and 19.1 mm) in diameter. For a wider area of coverage, the 784S-SS-F with fan air cap is available.

The unique design of the 784S-SS provides a fluid flow path free of any entrapment areas, critical for sterile and aseptic fluid applications. Wetted parts are 316L stainless steel and PTFE, which are suitable for CIP (Clean-In-Place) and SIP (Sterilize-In-Place) processes.

Features and Benefits

- Easy to clean or sterilize in place
- FDA-compliant wetted parts
- Low-maintenance design
- Positive shutoff, no seals

### TIP CENTERING GUIDE

The Tip Centering Guide ensures proper alignment of the dispensing needle in critical spray applications. Order components separately.

<table>
<thead>
<tr>
<th>Part #</th>
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<tbody>
<tr>
<td>7361023</td>
<td>Replacement air cap</td>
</tr>
<tr>
<td>7029405</td>
<td>Centering Guide, 23ga</td>
</tr>
<tr>
<td>7029406</td>
<td>Centering Guide, 25ga</td>
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<tr>
<td>7027985</td>
<td>Centering Guide, 27/33ga</td>
</tr>
<tr>
<td>7029407</td>
<td>Centering Guide, 30ga</td>
</tr>
<tr>
<td>7029408</td>
<td>Centering Guide, 32ga</td>
</tr>
</tbody>
</table>

### Specifications

- **Size:** 96.3 mm length x 31.5 mm diameter (3.79” x 1.24”)
- **Weight:** 430 g (15.2 oz)
- **Actuating air pressure required:** 70 to 90 psi (4.8-6.2 bar)
- **Maximum fluid pressure:** 25 psi (1.7 bar)
- **Fluid inlet thread:** 5/16-24 UNF tapped hole
- **Cycle rate:** Exceeds 400 per minute
- **Air cylinder body:** 316L stainless steel
- **Fluid body:** 316L stainless steel
- **Piston:** 316L stainless steel
- **Needle:** 316L stainless steel
- **Air cap:** 316L stainless steel
- **Maximum operating temperature:** Autoclaving 260°C (500°F)

All stainless steel parts are electro-polished and passivated.

For use with:
- Saline Solutions
- Stent Coatings
- Silicone Oils
- Solvents

The ValveMate 8040 controller provides excellent spray control to the 784S-SS Series valve. See page 51.
Radial Spray Valve
782RA

Unique design uses a precision air motor and Low Volume Low Pressure technology to apply a uniform coating of lubricants, primers and other low- to medium-viscosity fluids inside cylinders 25.4 mm to 304.8 mm (1” to 12”) in diameter.

Features and Benefits
- Adjustable nozzle air
- High transfer efficiency
- Self-adjusting PTFE packings
- No mist or overspray

Specifications
- Size: 174.5 mm length x 53.8 mm diameter (6.87” x 2.12”)
- Weight: 480.8 g (16.9 oz)
- Motor air consumption: <0.3 SCFM at 80 psi (5.4 bar)
- Nozzle air consumption: 1.5 SCFM at 30 psi (2.1 bar)
- Actuating air pressure required: 70 to 90 psi (4.8-6.2 bar)
- Maximum fluid pressure: 300 psi (20.7 bar)
- Fluid inlet thread: 1/8 NPT female
- Mounting: 1/4-28 UNF tapped hole
- Cycle rate: Exceeds 300 per minute
- Air cylinder body: Aluminum, hard-coat anodized
- Fluid body: Aluminum, hard-coat anodized
- Piston: 303 stainless steel
- Needle and nozzle: Stainless steel
- Needle packings: PTFE
- Rotor: Aluminum, hard-coat anodized

All stainless steel parts are passivated.

US Patent No. 0376,376 for 782RA Radial Spray Valve

For use with:
Accelerators
Activators
Lubricants
Primers
Solvents

7021649
(782RA Radial Spray Valve)
Rotor length is 5.59 cm (2.2") and reaches into cylinders with a minimum inner diameter of 2.54 cm (1.0”).
Includes fluid inlet fittings #7021499 and #7007038.
Fluid body and rotor are hard-coat anodized aluminum.
Each valve can be calibrated with the stroke reference knob for process control.
Radial valves include fluid inlet fittings and two 1.5 m (5 ft) control air hoses with fittings to connect the valve to the ValveMate 7160RA controller.

Spray coverage shown 1/3 actual size.
ValveMate 9000

Increased Functionality for Increased Results

The ValveMate 9000 controller supports two valve systems, one channel for each valve. Each channel is capable of driving a remote high-speed solenoid valve up to 500Hz. To further achieve greater precision and consistency, the controller incorporates a heating system and an electronic fluid reservoir pressure regulator for each channel.

The ValveMate 9000 can be programmed to automatically change the dispensing parameters over time. This allows the system to compensate for periodically changing conditions, such as viscosity changes as well as dispensing patterns of different sized deposits.

Features and Benefits

- Precise full-to-empty reservoir pressure control
- Setup parameters can be adjusted remotely by PLC
- Auto Increment mode that adjusts dispensing parameters after a certain number of shots or a specific elapsed time
- Accurate control of external system components such as low powered solenoids
- Auto Sequence mode that allows deposit patterns to be repeated automatically

Specifications

- Cabinet size: 255w x 111h x 214d mm (10.04"w x 4.36"h x 8.43"d)
  - H - includes feet
  - D - to end of fittings
- Weight: 3.45 kg (7.60 lb)
- Electrical power input: 100-240 VAC ± 10%, 2.4 Amp, 50-60Hz
- Feedback circuits:
  - End of Cycle (EOC) 1-2 and Alarm Out (AO)
  - Electronic Switch, 24 VDC, 100 mA maximum
- Initiate circuits:
  - VI 1-2: 5-24 Voltage Initiate Signal (DC)
  - 5-24 Voltage Initiate signal duration: no less than 200 μs momentary or maintained for steady mode operation
  - Foot Switch (optional): dry contact initiate circuit, 19 mA closure current
  - foot switch initiate signal is debounced for a period of 20 ms
  - debounce on foot switch signal can be disabled via serial command or by pressing the 'S' key during power up
- Time range: 0.0001–9.9999 sec, 100 μs resolution
- Cycle rate: Up to 500Hz
- Product classification: Installation Category II
- Pollution Degree 2
- Approvals:
  - CE, CSA, RoHS, WEEE & China RoHS Compliant
Spray Valve Controller

ValveMate 8040

The ValveMate 8040 Spray Valve controller provides precise control of nozzle air flow and spray time for the 781S, 784S and 787MS spray valves.

Features include an adjustable external actuating air and nozzle air manifold block, (2) independent programmable actuation channels, programmable shut-off delay of nozzle air to provide a post-cycle nozzle cleaning, digital time readout and push-button time change with separate test cycle button.

Features and Benefits
- 2 independent programmable actuation channels
- Low Volume Low Pressure (LVLP) for high transfer efficiency
- Cutoff air delay (0 to 2.5 seconds)
- Nonvolatile, power-off memory
- Fast-response pneumatic solenoids

Specifications
- Cabinet size: 18.3w x 5.1h x 8.6d cm
  (7.22"w x 2"h x 3.38"d)
- Weight: 0.27 kg (0.6 lb)
- Input AC (to power supply): 100-240 VAC, 50/60Hz
- Output voltage (from power supply): 24 VDC, 1.25 Amp maximum
- Power requirements: 24 VDC, 1.25 Amp maximum
- Feedback circuits:
  - 5 to 24 VDC AC solid-state switch
  - 100 mA maximum
- Initiate circuit: 5 to 24 VDC signal
- Cycle rate: Exceeds 400 per minute
- Time range:
  - Programmable 0.001 to 99.9 seconds
- Approvals:
  - CE, CSA, RoHS, WEEE & China RoHS Compliant

Order single or dual valve solenoid assemblies separately.

7022250
Solenoid valve kit, two in-line solenoids for nozzle/actuating air.

7022251
Solenoid valve kit, two dual blocks for nozzle/actuating air.

Contact EFD for recommendations.

Contact:
www.nordsonefd.com   info@nordsonefd.com   USA & Canada 800-556-3484   Europe +44 (0) 1582 666334   Asia +86 (21) 3866 9006
Multi-Valve Controller

ValveMate 8000

Automated dispensing stations run at maximum speed and efficiency when EFD dispense valves are operated by ValveMate controllers.

The ValveMate 8000 Multi-Valve controller provides the primary control for deposit size and is used with all 702, 725, 736HPA-NV, xQR41, 741 and 752 Series dispense valves. The controller is designed to bring fluid dispensing control close to the dispense valve and provide numerous user-friendly features that simplify valve setup and operation.

Capable of operating up to 4 dispense valves independently or simultaneously, the ValveMate 8000 controller and control air solenoids offer state-of-the-art features and capability, maximizing automated assembly machine efficiency and convenience.

Features and Benefits

- 4 independent programmable actuation channels
- Maximum process control
- “On the fly” deposit adjustment
- Easily interfaced with a PLC
- Fast-response pneumatic solenoids

7022004
(8000 Multi-Valve Controller)
Includes controller, stand, panel mount bezel and spring clips, filter regulator, and air manifold assembly with pre-wired pressure sensor.

For each ValveMate 8000 ordered, select the appropriate solenoid assembly for the number of valves used. Each solenoid kit includes the pre-wired 6 pin connector and housing, 3.6 m (12 ft) cable cordset, input air hose, and push-in fittings.

Note: Order appropriate dispense valve and reservoir separately. Contact Nordson EFD for recommendations.

Select the appropriate solenoid assembly for the number of valves used.

7022246
Single in-line solenoid for one valve operation.

7022247
Dual-solenoid block for two valve operation.

7022248
Tri-solenoid block for three valve operation.

7022249
Quad-solenoid block for four valve operation.

Specifications

- Cabinet size: 18.3w x 5.1h x 8.6d cm (7.22” w x 2” h x 3.38” d)
- Weight: 0.27 kg (0.6 lb)
- Input AC (to power supply): 100-240 VAC, 50/60Hz
- Output voltage (from power supply): 24 VDC, 1.25 Amp maximum
- Power requirements: 24 VDC, 1.25 Amp maximum
- Feedback circuits: 5 to 24 VDC NC solid-state switch 100 mA maximum
- Initiate circuit: 5 to 24 VDC signal
- Cycle rate: Exceeds 600 per minute
- Time range: Programmable 0.001 to 99.9 seconds
- Approvals: CE, CSA, RoHS, WEEE & China RoHS Compliant

www.nordsonefd.com   info@nordsonefd.com   USA & Canada 800-556-3484   Europe +44 (0) 1582 666334   Asia +86 (21) 3866 9006
Single Dispense Valve Controller
ValveMate 7100

The ValveMate 7100 single valve controller puts push-button adjustment of valve open time in increments as small as 0.001 seconds, right at the dispensing station. The result is exceptional process control without time-consuming programming or mechanical adjustments that require the production line to be shut down. For use with EFD models 702, 725, 736, xQR41, 741 and 752 Series dispense valves.

The Controller is designed for semi-automated or fully automated dispensing applications and features an internal control air solenoid.

Features and Benefits
- Maximum process control
- Intuitive, easy operator interface
- Cost-effective
- Simple to set up and operate
- Easily interfaced with a PLC

Specifications
- Cabinet size: 14.0 W x 6.8 H x 14.2 D cm (5.5" W x 2.7" H x 5.6" D)
- Weight: 1.2 kg (2.9 lb)
- Input AC (to power supply): 100-240 VAC, 50/60Hz
- Output voltage (from power supply): 24 VDC, 0.63 Amp maximum
- Power requirements: 24 VDC, 0.63 Amp maximum
- Feedback circuits: 5 to 24 VDC NC solid-state switch 100 mA maximum
- Initialize circuit: 5 to 24 VDC signal
- Cycle rate: Exceeds 600 per minute
- Time range: Programmable 0.001 to 99.9 seconds
- Approvals: CE, CSA, RoHS, WEEE & China RoHS Compliant

7015340
(7100 Single Valve Controller)
Includes controller, stand, panel mount bezel and spring clips, filter regulator and air manifold assembly with pre-wired pressure sensor.

VALVEMATE CONTROLLERS
Single Spray Valve Controller

ValveMate 7140

The ValveMate 7140 Spray Valve Controller is designed for single spray valve applications and features internal solenoids. It is a fast, convenient way to adjust spray valve open time in increments as small as 0.001 seconds. *Adjustable 0-30 psi (0-2.0 bar) nozzle air pressure regulator provides Low Volume Low Pressure (LVL) air to the nozzle for high transfer efficiency without overspray. The result is exceptional spray pattern definition without time-consuming programming or mechanical adjustments that require the production line to be shut down. For use with EFD models 781S, 784S and 787MS spray valves.

The Controller is designed for semi-automated or fully automated dispensing applications and features an internal control air solenoid.

*Also available with 0-100 psi (0-7 bar) nozzle air pressure control for spraying thicker materials.

Features and Benefits

- Timed or continuous spray
- Clean, clog-free cutoff
- Fast-response pneumatic solenoids
- Digital air output display (psi/bar)
- "On the fly" adjustment

7015341  
(7140 Spray Valve Controller)  
Features 0-30 psi (0-2 bar) nozzle air pressure control. Includes controller, stand, panel mount bezel and spring clips, filter regulator and air manifold assembly with pre-wired pressure sensor.

7015429  
(7140 Spray Valve Controller)  
Features 0-100 psi (0-7 bar) nozzle air pressure control. Includes controller, stand, panel mount bezel and spring clips, filter regulator and air manifold assembly with pre-wired pressure sensor.

Specifications

- Cabinet size: 20.0 w x 6.8 x 14.2 cm (7.9” w x 2.7” x 5.6”)
- Weight: 1.8 kg (3.14 lb)
- Input AC (to power supply): 100-240 VAC, 50/60Hz
- Output voltage (from power supply): 24 VDC, 0.63 Amp maximum
- Power requirements: 24 VDC, 0.63 Amp maximum
- Feedback circuits: 5 to 24 VDC NC solid-state switch 100 mA maximum
- Initiate circuit: 5 to 24 VDC signal
- Cycle rate: Exceeds 400 per minute
- Time range: Programmable 0.001 to 99.9 seconds
- Approvals: CE, CSA, RoHS, WEEE & China RoHS Compliant
Radial System

ValveMate 7160RA

The ValveMate 7160RA controller provides the proper controls required for consistent radial valve operation. Use with the 782RA radial spray valve or 7860C-RS radial spinner system.

Unique microprocessor circuitry provides precise control of nozzle air, valve open time and drive motor control solenoid.

Features include digital readout of spray on-time and nozzle air pressure. The 7160RA also includes a programmable shutoff delay and a test cycle button to initiate spray cycles during setup.

Features and Benefits

- Timed or continuous spray/air motor rotation
- Fast-response pneumatic solenoids
- Easily interfaced with a PLC
- Push-button time setting or one touch time programming

7028739
(7160RA Radial Spray Valve Controller)

Accessories included with each ValveMate 7160RA controller: Input air hose and fittings, five-micron filter regulator with air lubricator, universal mounting bracket and power cord.

Specifications

Cabinet size: 20.0 cm x 14.2 cm x 6.8 cm (7.9” x 2.7” x 5.6”)
Weight: 1.75 kg (3 lbs 14 oz)
Electrical Power Input: 24 VDC (+/- 5%), 0.63 A maximum
Electrical Input Connector:
Switchcraft L722RA or equivalent, locking type
External Power Adapter:
100–240 VAC (+/- 10%), ~ 50/60 Hz input, 24 VDC (+/- 5%), 0.63 A output,
Switchcraft S761K locking DC plug or equivalent, wall mount, changeable AC plugs
Feedback Circuits:
EOC Out & Alarm Out: Electronic switch, 24 VDC, 100 mA maximum
Initiate Circuits:
5–24 INIT: 5–24 VDC initiate signal
CC INIT & foot switch: Dry contact initiate circuits, 19 mA, closure current
INIT signal duration: No less than 0.012 seconds momentary or maintained for steady cycle
Cycle Rate:
Exceeds 400 per minute
Time Range:
Programmable 0.001–99.9 seconds
Product Classification:
Installation Category II
Pollution Degree 2
Meets or exceeds CE and CSA requirements
Auger Valve Controller
ValveMate 7194 Series

Designed for use with the 794 Series auger valves, ValveMate 7194 Series controllers provide a fast, convenient way to adjust valve open time in increments as small as 0.001 seconds. This provides exceptional process control and eliminates the need to reprogram a PLC.

A precision air pressure regulator provides precise pressure control to the barrel reservoir and can be operated in continuous or pulse mode. Each 794 Series auger valve requires a ValveMate 7194 controller for optimal valve performance.

Features and Benefits
- “On the fly” deposit adjustments
- Reverse capability mode provides clean cutoff for highly sticky materials
- Motor voltage range of 10-24 VDC
- Continuous or pulse pressure mode to reservoir
- Nonvolatile, power-off memory

Specifications
Cabinet size: 20.0 W x 6.8 H x 14.2 D cm (7.9” W x 2.7” H x 5.6” D)
Weight: 1.75 kg (3.9 lb)
Electrical power input: 30 VDC, 1.33 Amp maximum
External power adapter: 100-240 VAC, ~ 50/60 Hz input, 30 VDC, 1.33 Amp output
Initiate circuits: 5 to 24 VDC signal, foot pedal, or contact closure initiate
Cycle rate: Exceeds 400 per minute
Time range: Programmable 0.001–99.9 seconds
Approvals: CE, CSA, RoHS, WEEE & China RoHS Compliant

Includes controller, input air hose and fittings, five micron filter regulator with air lubricator, and power cord.
Precision Regulator/Digital Gauge Fluid Reservoirs

Precision fluid tank pressure control is essential to ensure consistent, accurate deposits from the dispense valve. EFD’s precision regulator/digital gauge tanks offer exceptional full-to-empty fluid pressure control, regardless of input pressure fluctuations.

Available in 0-10 psi (0-0.7 bar) for low-viscosity fluids and 0-100 psi (0-7.0 bar) for medium- to high-viscosity fluids.

Features and Benefits

- Precision fluid pressure regulation/digital readout for exact fluid pressure control
- Repeatability—from one shift to the next, precision regulator/digital gauge can be reset to exact pressure setting
- Tighter setting tolerances—pressures can be set to tenths of psi
- Fast response, robust pressure regulator

Specifications

Model: 1.0 Liter  
Tank body: Cast aluminum  
Capacity: 1.0 liter  
Maximum operating pressure: 100 psi (7.0 bar)  
Maximum operating temperature: 50° C (122° F)  
Weight: 3.0 kg (6.60 lb)  
Height: 350 mm (13.75")  
Diameter (cover maximum): 172 mm (6.75")

Model: 5.0 Liter  
Tank body: Cast aluminum  
Capacity: 5.0 liter  
Maximum operating pressure: 100 psi (7.0 bar)  
Maximum operating temperature: 50° C (122° F)  
Weight: 9.1 kg (20.1 lb)  
Height: 413 mm (16.25")  
Diameter (cover maximum): 251 mm (9.85")

All necessary fittings and feed tubing are included with each Fluid Tank.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7013460</td>
<td>1.0 liter Tank with 0-10 psi (0-0.7 bar) regulator.</td>
</tr>
<tr>
<td>7013489</td>
<td>1.0 liter Tank with 0-100 psi (0-7.0 bar) regulator.</td>
</tr>
<tr>
<td>7013430</td>
<td>5.0 liter Tank with 0-10 psi (0-0.7 bar) regulator.</td>
</tr>
<tr>
<td>7013490</td>
<td>5.0 liter Tank with 0-100 psi (0-7.0 bar) regulator.</td>
</tr>
</tbody>
</table>
Fluid Reservoirs

EFD fluid tanks maintain steady fluid pressure, prevent fluid contamination and evaporation and contain fumes. Tanks are available with 0-15 psi (0-1.0 bar) or 0-100 psi (0-7.0 bar) constant-bleed air regulators to handle different fluid viscosities.

The air regulator is selected based on fluid viscosity. Watery fluids require the 0-15 psi (0-1.0 bar) regulator, while thicker fluids need the 0-100 psi (0-7.0 bar) regulator. Since tanks are charged by plant air, we recommend the five-micron filter regulator (#7002002) to filter contaminants.

Each fluid tank is shipped complete with constant-bleed precision air regulator and gauge, air hose with shutoff valve, liner and fluid feed tubing.

**615 Series**

**1.0 Liter Tanks**

Accommodates one pound/one liter bottles. Recommended for pourable fluids only.

**626 Series**

**5.0 Liter Tanks**

Fluid can be poured into the liner or the fluid container may be put into the reservoir for direct dispensing.

---

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>615DTH</th>
<th>626DTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank body</td>
<td>cast aluminum</td>
<td>cast aluminum</td>
</tr>
<tr>
<td>Inside diameter</td>
<td>9.7 cm (3.82&quot;)</td>
<td>17.3 cm (6.81&quot;)</td>
</tr>
<tr>
<td>Inside depth</td>
<td>17.4 cm (6.87&quot;)</td>
<td>24.8 cm (9.75&quot;)</td>
</tr>
<tr>
<td>Replaceable liner</td>
<td>polyethylene</td>
<td>polyethylene</td>
</tr>
<tr>
<td>Liner capacity</td>
<td>0.95 liter</td>
<td>3.8 liter</td>
</tr>
<tr>
<td>Overall width</td>
<td>17.3 cm (6.81&quot;)</td>
<td>28.3 cm (11.14&quot;)</td>
</tr>
<tr>
<td>Overall height</td>
<td>35.6 cm (14.01&quot;)</td>
<td>40.6 cm (15.98&quot;)</td>
</tr>
<tr>
<td>Regulator &amp; gauge</td>
<td>100 psi (7.0 bar)</td>
<td>100 psi (7.0 bar)</td>
</tr>
<tr>
<td>Maximum operating pressure</td>
<td>100 psi (7.0 bar)</td>
<td>100 psi (7.0 bar)</td>
</tr>
</tbody>
</table>

**7010004**

(615DTH)

1.0 liter tank with 100 psi (7.0 bar) regulator.

**7020121**

(615DTL)

1.0 liter tank with 15 psi (1.0 bar) regulator.

**7020120**

(615DTH-FS)

1.0 liter tank with 100 psi (7.0 bar) regulator and stainless steel low level float switch (suitable for use with most lubricants, fluxes and solvents).

**7020122**

(615DTL-FS)

1.0 liter tank with 15 psi (1.0 bar) regulator and stainless steel low level float switch (suitable for use with most lubricants, fluxes and solvents).

**7020186**

(626DTH)

5.0 liter tank with 100 psi (7.0 bar) regulator.

**7020189**

(626DTL)

5.0 liter tank with 15 psi (1.0 bar) regulator.

**7020187**

(626DTH-FS)

5.0 liter tank with 100 psi (7.0 bar) regulator and black feed tubing for light-sensitive and UV-cure materials.

**7020188**

(626DTL-FS)

5.0 liter tank with 15 psi (1.0 bar) regulator and stainless steel low level float switch (suitable for use with most lubricants, fluxes and solvents).

**7020190**

(626DTH-FS)

5.0 liter tank with 15 psi (1.0 bar) regulator and stainless steel low level float switch (suitable for use with most lubricants, fluxes and solvents).

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www.nordsonefd.com   info@nordsonefd.com   USA & Canada 800-556-3484   Europe +44 (0) 1582 666334   Asia +86 (21) 3866 9006
Cartridge Retainer Systems

Two styles are available—one uses disposable polyethylene liners in sizes of 2.5 fl oz (75 ml), 6.0 fl oz (180 ml), 12 fl oz (360 ml), 20 fl oz (600 ml) and 32 fl oz (960 ml). The second is a 1/10 gallon (300 ml) system for use with pre-filled caulking tubes.

Both systems include cap, cartridge, all necessary fittings, air tubing, regulator with gauge and 1.5 m (5 ft) of 6 mm (0.24") OD polyethylene feed tubing.

Regulators supplied with cartridge reservoirs are precision, constant-bleed type to ensure consistent liquid pressurizing at all pressure settings.

Each reservoir includes a special tee fitting to connect both the reservoir and the controller to the EFD five-micron filter regulator (supplied with each ValveMate controller).

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012431</td>
<td>2.5 fl oz</td>
<td>Cartridge assembly with 15 psi (1.0 bar) regulator</td>
</tr>
<tr>
<td>7012432</td>
<td>2.5 fl oz</td>
<td>Cartridge assembly with 100 psi (7.0 bar) regulator</td>
</tr>
<tr>
<td>7012434</td>
<td>6 fl oz</td>
<td>Cartridge assembly with 15 psi (1.0 bar) regulator</td>
</tr>
<tr>
<td>7012435</td>
<td>6 fl oz</td>
<td>Cartridge assembly with 100 psi (7.0 bar) regulator</td>
</tr>
<tr>
<td>7012437</td>
<td>12 fl oz</td>
<td>Cartridge assembly with 15 psi (1.0 bar) regulator</td>
</tr>
<tr>
<td>7012438</td>
<td>12 fl oz</td>
<td>Cartridge assembly with 100 psi (7.0 bar) regulator</td>
</tr>
<tr>
<td>7013889</td>
<td>20 fl oz</td>
<td>Cartridge assembly with 15 psi (1.0 bar) regulator</td>
</tr>
<tr>
<td>7012440</td>
<td>20 fl oz</td>
<td>Cartridge assembly with 100 psi (7.0 bar) regulator</td>
</tr>
<tr>
<td>7014100</td>
<td>32 fl oz</td>
<td>Cartridge assembly with 100 psi (7.0 bar) regulator</td>
</tr>
<tr>
<td>7018646</td>
<td>1/10 gal</td>
<td>Cartridge assembly for caulking tubes with 100 psi (7.0 bar) regulator</td>
</tr>
</tbody>
</table>
Rhino™ Bulk Unloader

EFD's Rhino bulk unloaders are designed to dispense high-viscosity, ambient-temperature adhesives and sealants for a variety of manufacturing applications. These durable bulk unloaders provide superior flow properties and ease of operation when dispensing high-viscosity adhesive and sealant materials.

Package includes one Rhino pump assembly with output fittings sized for a 3/8” high pressure hose. Fittings are JIC, 37 degrees with 9/16-18 threads; one mastic regulator assembly with input and output fittings, fluid pressure gauge, air regulator and gauge for air diaphragm.

Features and Benefits
- Works with EFD high-pressure valves
- Large internal passages for greater efficiency
- Fast air motor changeovers for uniform output
- Oil-less air motor
- Wear-resistant XDII “Scoreguard” hydraulic pump sections

**RHINO SELECTION GUIDE**

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Air Motor Size</th>
<th>Volumetric Displacement</th>
<th>Maximum Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>48:1</td>
<td>10”</td>
<td>8 in³/stroke</td>
<td>4.2 liter/min.* (1.1 gal/min.)</td>
</tr>
<tr>
<td>65:1</td>
<td>10”</td>
<td>5.8 in³/stroke</td>
<td>2.8 liter/min.* (0.75 gal/min.)</td>
</tr>
</tbody>
</table>

*Output dependent on material viscosity, temperature, filters and system configuration.
** Add 192.4 mm (6”) to height dimension for units with optional casters.
## VALVE ACCESSORIES

<table>
<thead>
<tr>
<th>Part</th>
<th>Part #</th>
<th>Valve</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7020507</td>
<td></td>
<td>All valves</td>
<td>Universal valve mount</td>
</tr>
<tr>
<td>7020509</td>
<td></td>
<td>All valves</td>
<td>Universal valve mount with #7007003 rod</td>
</tr>
<tr>
<td>7021057</td>
<td></td>
<td>All valves</td>
<td>Universal stainless steel valve stand with cast aluminum base</td>
</tr>
<tr>
<td>7021054</td>
<td>750 Series</td>
<td></td>
<td>Includes universal valve mount/rod.</td>
</tr>
<tr>
<td>7021056</td>
<td>781 Series</td>
<td></td>
<td>Valve stand</td>
</tr>
<tr>
<td>7021059</td>
<td>725D Series</td>
<td></td>
<td>Valve stand</td>
</tr>
<tr>
<td>7021070</td>
<td>750 Series</td>
<td></td>
<td>Stainless steel mounting rods are 1.3 cm diameter x 17.8 cm long (0.5” x 7”).</td>
</tr>
<tr>
<td>7007003</td>
<td>741/781 Series</td>
<td></td>
<td>Designed for specific valves.</td>
</tr>
<tr>
<td>7021079</td>
<td>725D Series</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7021136</td>
<td>736HPA-NV/725HF Series</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7002002</td>
<td></td>
<td>All valves</td>
<td>Filter/Regulator provides dry, filtered air to controllers and reservoirs.</td>
</tr>
<tr>
<td>7016548</td>
<td></td>
<td>All valves</td>
<td>Filter/Regulator with coalescer removes remaining liquid aerosols from air supply.</td>
</tr>
<tr>
<td>7028717</td>
<td></td>
<td>All valves except 702V, 750V/751V horizontal mount versions and 704 Series Valves</td>
<td>Pneumatic DispensGun valve handle allows the operator to start and stop the dispense cycle. Provides a comfortable, secure grip and features a universal mounting clamp.</td>
</tr>
<tr>
<td>7028718</td>
<td></td>
<td>All valves except 702V, 750V/751V horizontal mount versions and 704 Series Valves</td>
<td>Electric DispensGun valve handle that is designed for use with an EFD ValveMate controller. The electric configuration can produce either timed, repeatable deposits or operator-controlled deposits.</td>
</tr>
<tr>
<td>7021282</td>
<td>750 Series (stainless steel)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7007034</td>
<td>782RA (aluminum)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7021621</td>
<td>741/781 Series (aluminum)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7021622</td>
<td>741/781 Series (stainless steel)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7021266</td>
<td>741/781 Series</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7021503</td>
<td>750 Series</td>
<td></td>
<td>Tamper-resist upgrade kit</td>
</tr>
<tr>
<td>7021500</td>
<td>782RA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:**
- **736HPA-NV/725HF Series**: Designed for specific valves.
- **Stainless steel mounting rods**: 1.3 cm diameter x 17.8 cm long (0.5” x 7”).
- **Filter/Regulator with coalescer**: Removes remaining liquid aerosols from air supply.
- **Pneumatic DispensGun valve handle**: Allows the operator to start and stop the dispense cycle.
- **Electric DispensGun valve handle**: Designed for use with an EFD ValveMate controller.
- **Calibration ring**: Provides 25 graduations per turn for exact stroke reference.

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**Contact Information:**
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- info@nordsonefd.com
- USA & Canada: 800-556-3484
- Europe: +44 (0) 1582 666334
- Asia: +86 (21) 3866 9006
**Liquid manifolds** can supply liquid from one reservoir to as many as (4) valves. Manifold and hose compression fittings are black polypropylene.

<table>
<thead>
<tr>
<th>Fitting</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7021523</td>
<td>Liquid manifold, 3 outlets, 9.5 mm (3/8&quot;) OD tubing</td>
</tr>
<tr>
<td></td>
<td>7021524</td>
<td>Liquid manifold, 3 outlets, 6.4 mm (1/4&quot;) OD tubing</td>
</tr>
<tr>
<td></td>
<td>7021525</td>
<td>Liquid manifold, 4 outlets, 9.5 mm (3/8&quot;) OD tubing</td>
</tr>
<tr>
<td></td>
<td>7021526</td>
<td>Liquid manifold, 4 outlets, 6.4 mm (1/4&quot;) OD tubing</td>
</tr>
</tbody>
</table>

**Y-fittings for fluid or air tubing**

<table>
<thead>
<tr>
<th>Fitting</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7007017</td>
<td>Polypropylene Y barb fitting for 3.2 mm (1/8&quot;) ID tube</td>
</tr>
<tr>
<td></td>
<td>7021537</td>
<td>Black nylon Y barb fitting for 3.2 mm (1/8&quot;) ID tube</td>
</tr>
<tr>
<td></td>
<td>7021541</td>
<td>Polypropylene Y barb fitting for 6.4 mm (1/4&quot;) ID tube</td>
</tr>
<tr>
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<td>Black plastic push-in fitting for 4.0 mm (5/32&quot;) OD tube</td>
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### VALVE FITTINGS

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<td>1/4 pass-thru bulkhead, nylon</td>
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### VALVE FITTINGS

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## VALVE FITTINGS

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<td>7020159</td>
<td>Pass-through reducer 3/8 to 1/4 tubing, nylon</td>
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## Valve Features

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*Ultra High Molecular Weight polyethylene **741V-SS model only ***xQR41 model only ✓ Applicable O Optional — Not applicable

## Controller Features

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## VALVE APPLICATIONS

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<th>Encapsulating</th>
<th>Lines/Stripes</th>
<th>Filling/Packaging</th>
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<td>725HF-SS</td>
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*Note: For microdot applications requiring general purpose tip sizes between 27 and 33 gauge, specify valve model xQR41 in place of 741V-SS.
## VALVE APPLICATIONS

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<tr>
<th>Fluids</th>
<th>Microdots</th>
<th>Dots</th>
<th>Potting</th>
<th>Encapsulating</th>
<th>Lines/Stripes</th>
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*Important Note:* For dispensing applications of low to medium viscosity fluids where a 316L SS wetted fluid body with aseptic fluid flow path is preferred, choose the 754V-SS diaphragm valve.

### APPLICATION DEFINITIONS

| Microdots: | Any deposit having a volume less than 5 μl (5 μl = 5 microliters = 5/1000 cc). |
| Dots: | Any deposit having a volume larger than 5 μl. |
| Potting: | Filling a cavity usually containing an electronic device, electronic circuit or wires. |
| Encapsulating: | Applying a coating to an electronic component for protection from mechanical or environmental damage. |
| Lines: | A line, bead or stripe of material. |
| Filling/ Packaging: | Filling containers such as small bottles, cartridges and tubes. |
| Spray: | Applying fluids using low pressure air to break the fluid into fine droplets for coating or marking. |
| Internal Spray: | Spraying the inside diameter of holes and cylinders. |

Maximum operating temperatures of EFD valves should not exceed 43°C (110°F) except for the 736HPA-NV, 741V and 781S Series valves, which can operate up to 110°C (215°F).
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</tr>
<tr>
<td>low pressure (to 100 psi, 7.0 bar)</td>
<td>5194-12H</td>
<td>5194-12H</td>
<td>—</td>
<td>—</td>
<td>5192-6H</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>medium pressure (to 300 psi, 20.7 bar)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>—</td>
<td>—</td>
<td>—</td>
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<td>—</td>
</tr>
<tr>
<td>high pressure (to 2500 psi, 172 bar)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Inks</td>
<td>—</td>
<td>626DTH</td>
<td>—</td>
<td>—</td>
<td>615DTL</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Oils</td>
<td>—</td>
<td>626DTH</td>
<td>—</td>
<td>—</td>
<td>615DTL</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Optical Dyes</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Optical Lacquers</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>
The 741MD-SS is supplied with a luer lock input fitting for barrel reservoir use.

The 615 and 626 series tanks are top ported and can accept shipping containers that fit the internal dimensions of the tanks.

<table>
<thead>
<tr>
<th>Inside diameter</th>
<th>Inside depth</th>
<th>Liner volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.7 cm (3.82&quot;)</td>
<td>17.3 cm (6.81&quot;)</td>
<td>3.8 liter</td>
</tr>
</tbody>
</table>

The 615DTL (15 psi, 1.0 bar) and 615DTH (100 psi, 7.0 bar) are supplied with 10 ft (3.0 m) of 1/4" flexible polyethylene feed tubing.

The 626DTL (15 psi, 1.0 bar) and 626DTH (100 psi, 7.0 bar) are supplied with 10 ft (3.0 m) of both the 1/4" and 3/8" tubing.

The 626DTH-B reservoir is supplied with both 1/4" and 3/8" black tubing.

The 0-100 psi (0-7.0 bar) cartridge reservoirs have 5 ft (1.5 m) of 3/8" flexible polyethylene tubing.

The 5201-SYS-H has 5 ft (1.5 m) of 3/8" flexible polyethylene tubing.

For viscosity fluids, specify the 0-15 psi (0-1.0 bar) reservoir.

For medium viscosity fluids, specify the 0-100 psi (0-7.0 bar) reservoir.
System Overview

EFD’s PICO piezoelectric jet dispensing systems have three components: (1) a PICO Pulse™ valve, (2) a PICO Touch™ controller, (3) and a fluid reservoir. All components are precisely engineered to work together as a complete, integrated system to deliver exceptionally fast, accurate deposits.

Features and Benefits

- Continuous operation up to 500Hz continuous with 1500Hz max bursts – an industry best
- Consistent shots as small as 0.5 nanoliters
- Ideal for dispensing into tight, hard-to-access or uneven substrates
- Non-contact jetting systems eliminate Z-axis movement for significantly faster production speeds
- Compatible with a wide range of fluids

About Piezo Technology

PICO jet valves incorporate a piezoelectric actuator composed of stacked ceramic coins that expand and contract in response to changes in voltage supplied by the PICO Controller. The piezo actuator connects to a vertical rod that mates with a tappet stem within a spring-energized “jetting” cartridge. The tappet stem has a wear-resistant ceramic sealing ball at its lower end.

When the valve is closed, the ball is seated in the valve nozzle plate to prevent fluid flow between cycles. The unique precision engineering and machining of these critical components create an exceptional dispensing valve with the ability to apply precise, accurate micro-deposits of assembly fluid.

When voltage is applied to the actuator, the rod and cartridge sealing ball are raised so that the pressurized fluid can flow to the nozzle. When the voltage is changed, the rod and tappet stem sealing ball descend rapidly to “jet” the fluid out of the nozzle and onto the substrate.
PICO Pulse Valve

PICO Pulse modular jetting technology removes the barrier between speed and accuracy. Even at max speed of 500Hz continuous, the PICO Pulse non-contact dispense valve provides industry-leading accuracy in deposit consistency and placement for your most challenging applications.

Non-contact jet valve systems make it possible to apply fluid in hard-to-access areas or onto uneven or delicate substrates where a dispensing needle cannot be used.

Features and Benefits

- Exchangeable, modular design for greater configurability
- Tool-free latch allows fast, easy serviceability and reduces downtime
- Capability to jet low- to high-viscosity fluids creates flexibility to meet changing needs
- Dispenses at 500Hz continuous, with 1500Hz maximum bursts
- Variable stroke for precise dispensing control

For use with:
- Adhesives
- Liquid Polymers
- Alcohol
- Oils
- Conductive Epoxies
- Organic Solvents
- Food Colors
- Underfill
- Greases
- UV-cure
- Hydrous Solutions
- Adhesives

7361218
(PICO Pulse Valve SD)
For standard duty applications with cycle rates less than 250Hz.

7361283
(PICO Pulse Valve HD)
For heavy duty applications with cycle rates greater than 250Hz.

Specifications
Size: 22w x 120h x 75l mm (0.9”w x 5”h x 2.92”l)
Weight: 272 g (9.6 oz)
Maximum fluid pressure: 700 psi (49.0 bar)
Fluid inlet thread: M5
Mounting: M4 x 0.7
Fluid body: 303 stainless steel
Fluid body nozzle size: Several nozzle orifice diameters
Ball-and-seat: Ceramic
Heater body: Aluminum

All stainless steel parts are passivated.
PICO Pulse FLUID BODY ASSEMBLIES

Nordson EFD offers a wide range of fluid bodies and cartridges that come together as matched sets to deliver the precise performance and repeatability needed to meet specific application requirements.

Fluid body assemblies are available in seat orifice sizes ranging from 50-600 microns with a choice of Type D and Type E geometries.

- Type “D” seat: Standard version is suitable for most fluids and can result in less splashing of the deposit for low- to medium-viscosity fluids.
- Type “E” seat: Recommended for highly viscous/stringing type fluids, it generates more kinetic energy during jetting for better release off nozzle plate and less “tailing.”

Consult EFD’s Technical Service team for the best recommendation on Fluid Body Assembly/Seat Geometry for your application.

<table>
<thead>
<tr>
<th>Fluid Body</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7361837</td>
<td>Fluid body assembly, E seat geometry, 50 μm orifice</td>
</tr>
<tr>
<td></td>
<td>7361836</td>
<td>Fluid body assembly, E seat geometry, 100 μm orifice</td>
</tr>
<tr>
<td></td>
<td>7361838</td>
<td>Fluid body assembly, E seat geometry, 150 μm orifice</td>
</tr>
<tr>
<td></td>
<td>7361839</td>
<td>Fluid body assembly, E seat geometry, 300 μm orifice</td>
</tr>
<tr>
<td></td>
<td>7361840</td>
<td>Fluid body assembly, D seat geometry, 150 μm orifice</td>
</tr>
<tr>
<td></td>
<td>7361841</td>
<td>Fluid body assembly, D seat geometry, 200 μm orifice</td>
</tr>
<tr>
<td></td>
<td>7361842</td>
<td>Fluid body assembly, D seat geometry, 300 μm orifice</td>
</tr>
<tr>
<td></td>
<td>7361843</td>
<td>Fluid body assembly, D seat geometry, 400 μm orifice</td>
</tr>
<tr>
<td></td>
<td>7361844</td>
<td>Fluid body assembly, D seat geometry, 600 μm orifice</td>
</tr>
</tbody>
</table>

PICO Pulse EXTENSION CABLES

Extension cable sets include a power cable and a communication cable for connection to the PICO Touch Controller. Includes each one for power and communication.

<table>
<thead>
<tr>
<th>Cable</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7361298</td>
<td>2 m (6.6 ft) valve extension cable set</td>
</tr>
<tr>
<td></td>
<td>7361299</td>
<td>6 m (19.7 ft) valve extension cable set</td>
</tr>
<tr>
<td></td>
<td>7361300</td>
<td>9 m (29.5 ft) valve extension cable set</td>
</tr>
</tbody>
</table>

ACCESSORIES

<table>
<thead>
<tr>
<th>Part</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varies</td>
<td>7361770</td>
<td>HP High-Pressure Dispensing Tool. Used to jet very thick assembly fluids such as RTV silicones, epoxies, and medical-grade adhesives. See page 20.</td>
</tr>
<tr>
<td></td>
<td>7361771</td>
<td>HP3cc Adapter Kit for use with PICO Pulse.</td>
</tr>
<tr>
<td></td>
<td>7361772</td>
<td>HP5cc Adapter Kit for use with PICO Pulse.</td>
</tr>
<tr>
<td></td>
<td>7361295</td>
<td>PICO Pulse Valve Cleaning Kit. Includes brushes, swabs, mini-reamers, and magnifying loupe.</td>
</tr>
</tbody>
</table>
**PICO Touch Controller**

The Touch controller uses a touchscreen and visual interface to greatly simplify setup and operation, while allowing precise adjustment of parameters such as open and close times. Easily integrate unprecedented control, precision, and performance into any dispensing application.

**Features and Benefits**

- Intuitive, easy-to-use touchscreen interface for precise control of PICO Pulse valve
- 480 x 272 resolution for sharper screen visibility
- More exact adjustment of valve parameters and performance
- Fine-tune dispensing performance by setting ramp open and close parameters and stroke control from the unique Wave Profile screen
- Flexibility to control the dispense of a wide range of fluids and viscosities
- Programmable lockout to prevent unintended changes to settings

**Specifications**

- **Cabinet size:** 14.2" x 13.3" x 16.8" cm (28 Hp x 3U)
- **Weight:** 2.6 kg (5.5 lb)
- **Input AC (to power supply):** 100–240 VAC +/-10%, 50–60 Hz, 2A
- **Output DC (from power supply):** 24VDC, 6.25 Amp
- **Feedback circuit:** 0-24 VDC
- **Initiate circuit:** 5-24 VDC
- **Time range:** 100 μs to 9.9999 s
- **Approvals:** CE, RoHS, WEEE, & China RoHS Compliant
Process Generators (V2/V3 Controllers)

Nordson EFD offers two types of process generators to use with the PICO Touch Controller when multiple lines of programming are needed to achieve specific deposit patterns in some applications. Both produce a high-precision 24 V dispensing signal of 0.2 ms or less. The efficiency and reproducibility of piezoelectric valves, particularly with small quantities and/or high dosing frequencies, is maximized.

Features and Benefits

- Centralized PC or PLC control of parameter settings for more efficient operation
- Application results are maintained over time with a high degree of precision
- Ability to document operating parameters and to block local changes by operators increases operational reliability (V3 model only)
- Included CAN protocol adapts to many fieldbus protocols (V3 model only)

PICO Controller V2

The PICO Controller V2 allows only local changes to the operating parameters via its function buttons and menu item selections.

Available in 2 channels, upgradeable to 4 channels.

PICO Controller V3

The PICO Controller V3 provides all the features and benefits of the PICO V2 plus the capability to communicate with higher-level systems via standard fieldbus connection, expanding its functionality for complex dispensing jobs.

Available in 2 channels and 4 channels.

Optional housing provides convenient mounting for controllers and drivers.

Optional V3-Kit available with PROFIBUS communicator.

Specifications

PICO V2 Controller

Enclosure

Cabinet size: 14.2w x 12.9h x 17.1o cm

(5.6”w x 5.1”h x 6.7”o)

Weight: 1.5 kg (3.3 lb)

Material: Aluminum, black anodized

Degree of protection: IP20

Electrical Data

Voltage supply: 24 V DC ± 10 %

Power consumption

(without load):

2 channel variation: maximum 1.7 W

4 channel variation: maximum 2.5 W

PICO V3 Controller

Enclosure

Cabinet size: 14.2w x 12.9h x 17.1o cm

(5.6”w x 5.1”h x 6.7”o)

Weight: 1.5 kg (3.3 lb)

Material: Aluminum, black anodized

Degree of protection: IP20

Electrical Data

Voltage supply: 24 V DC ± 10 %

Power consumption

(without load):

2 channel variation: maximum 1.7 W

4 channel variation: maximum 2.5 W

Specifications
PICO Fluid Reservoirs

PICO reservoir systems are designed to function with Nordson EFD Optimum barrel and cartridge components as a complete, integrated system that improves yields and reduces costs in fluid dispensing processes. A comprehensive selection is available to meet the fluid capacity needs of your jetting or needle valve applications.

Choose EFD Optimum reservoirs for standard operating fluid feed pressures less than 100 psi (7 bar). For fluid pressures greater than 100 psi (7 bar), select PICO stainless steel reservoir retainer systems that accommodate standard EFD Optimum barrels or 2.5, 6.0, 20, and 32 oz cartridges. PICO stainless steel reservoir systems can accommodate input pressures as high as 725 psi (50 bar).
P Series Jetting Valves

P-Jet CT and P-Dot CT

The P-Jet and P-Dot pneumatic jet valves deliver precise, consistent non-contact dispensing of low- to high-viscosity fluids with micro-deposits starting at 3 nL. Both feature easily exchangeable dispensing nozzles, tappets, and fluid inlet fittings to meet a wide range of application requirements. Rigorously tested to withstand highly-industrial environments, the P-Jet and P-Dot also feature a low cost of ownership.

Features and Benefits

- Highly repeatable and accurate non-contact jet dispensing
- Micro-deposit dispensing at frequencies up to 280Hz
- Separate wetted parts allow for simplified service and maintenance
- Modular design makes it easy to customize for different applications

Specifications

P-Dot CT

- Size: 38.6 w x 126.7 h x 61.0 l mm (1.5"w x 5"h x 2.4"l)
- Weight: 270 g (9.5 oz)
- Maximum fluid pressure: 1450 psi (100 bar)
- Fluid inlet thread: M8 x 1, flat sealing
- Mounting: M3 x 25
- Fluid body: 303 stainless steel or PEEK (P-Jet only)
- Fluid body nozzle size: Various sizes and forms
- Heater body: Aluminum

P-Jet CT

- Size: 20 w x 138.5 h x 78.5 l mm (0.8"w x 5.5"h x 3"l)
- Weight: 270 g (9.5 oz)
- Maximum fluid pressure: 1450 psi (100 bar)
- Fluid inlet thread: M8 x 1, flat sealing
- Mounting: M3 x 25
- Fluid body: 303 stainless steel or PEEK (P-Jet only)
- Fluid body nozzle size: Various sizes and forms
- Heater body: Aluminum

For use with:

- Anaerobics
- Greases
- Epoxies
- Silicones
- Fluxes
- Sealing Laxers
- Glues
- UV-cure Adhesives
The pneumatic jet valves can be uniquely configured to achieve the best dispensing result for your material and application. A Nordson EFD application specialist will help select the best valve system components for optimal jetting performance.

### P SERIES JET VALVE COMPONENTS

<table>
<thead>
<tr>
<th>Part</th>
<th>Part #</th>
<th>Description</th>
<th>P-Dot CT</th>
<th>P-Jet CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS2040 (L)</td>
<td>Steel tappet P-Jet CT (standard)</td>
<td>—</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>ESC2040 (L)</td>
<td>Ceramic tappet</td>
<td>—</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>ESSD2027 (L)</td>
<td>Steel tappet P-Dot CT (standard)</td>
<td>✓</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>UM405030 (L)</td>
<td>Tappet nut P-Dot CT</td>
<td>✓</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>OR2N15 (L)</td>
<td>NBR O-Ring</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>OR2E15 (L)</td>
<td>EPDM O-Ring</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>OR2P15 (L)</td>
<td>Perlast O-Ring</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>OR2V15 (L)</td>
<td>Viton O-Ring</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>EF2020 (L)</td>
<td>Steel fluid body</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>EF2020AN (L)</td>
<td>Plastic fluid body</td>
<td>—</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>DS1450 (L)</td>
<td>Drainage block</td>
<td>✓</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>VK200X (L)</td>
<td>2.5 m (8.2 ft) M8 valve cable</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>SB8210 (L)</td>
<td>Safety plate</td>
<td>✓</td>
<td>—</td>
<td></td>
</tr>
</tbody>
</table>

### P SERIES JET VALVE NOZZLES

Nozzles are available in different sizes and forms. Please consult EFD’s Technical Service team for available components.

<table>
<thead>
<tr>
<th>Nozzle</th>
<th>Part #</th>
<th>Description</th>
<th>P-Dot CT</th>
<th>P-Jet CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FD6xxx* (L)</td>
<td>Steel flat nozzle</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>ND6xxx (L)</td>
<td>Steel needle nozzle</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>NDK6xxx (L)</td>
<td>Plastic needle nozzle with steel tip</td>
<td>—</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>NDKT6xxx (L)</td>
<td>Plastic needle nozzle with PTFE tip</td>
<td>—</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>UM6110 (L)</td>
<td>Hexagon retaining nut</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>UM8110KSNDK (L)</td>
<td>Knurled retaining nut for plastic nozzles with tip</td>
<td>—</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

*xxx = Specify the nozzle size (for example, the part # for a 70 μm steel flat nozzle would be FD6070)

### P SERIES JET VALVE FITTINGS

<table>
<thead>
<tr>
<th>Fitting</th>
<th>Part #</th>
<th>Description</th>
<th>P-Dot CT</th>
<th>P-Jet CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LL3005 (L)</td>
<td>Steel luer lock adapter for syringe barrels</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>LL3005AN (L)</td>
<td>Plastic luer lock adapter for syringe barrels</td>
<td>—</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>SA0403 (L)</td>
<td>Steel tube connector for 3 mm ID tubing</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>SA0321 (L)</td>
<td>Plastic tube connector for 3.2 mm ID tubing</td>
<td>—</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
V100 Controller

The V100 controller provides safe, easy operation of the P-Jet CT and P-Dot CT jet valves and greater control over dispensing outcomes. By providing control of dispensing parameters, the V100 makes it possible to optimize valve performance. Two precision pressure regulators and a digital display make it easy to adjust parameters to get the perfect deposit.

Features and Benefits

- Single shot operation
- Continuous shot operation at 0.1Hz to 150Hz
- Continuous display of actual pressure and temperature readings
- Setpoint Counter sets the number of shots and shows the actual number of shots deposited

CV0100 (L)  
(Standard V100 Controller)
No heater control.

CV0100EW (L)  
(Expanded V100 Controller)
With heater control extension.

Specifications

- Cabinet size: 450w x 125h x 250d mm  
  (19” rack 3HE) 18”w x 5”h x 9”d
- Weight: 2 kg (4.5 lb)
- Input DC (to power supply): 24 VDC
- Output DC (from power supply): 24 VDC
- Power requirements: 0-13 VDC (low level)  
  16-24 VDC (high level)  
  2.5 Amp maximum
- Initiate circuit: 0-24 VDC
- Time range: 1 ms to infinite
- Cycle rate: 0.1 to 150Hz
- Product classification: IP40
- Protection Class III
- Approvals: CE

V100 Controller

The V100 controller provides safe, easy operation of the P-Jet CT and P-Dot CT jet valves and greater control over dispensing outcomes. By providing control of dispensing parameters, the V100 makes it possible to optimize valve performance. Two precision pressure regulators and a digital display make it easy to adjust parameters to get the perfect deposit.

Features and Benefits

- Single shot operation
- Continuous shot operation at 0.1Hz to 150Hz
- Continuous display of actual pressure and temperature readings
- Setpoint Counter sets the number of shots and shows the actual number of shots deposited

CV0100 (L)  
(Standard V100 Controller)
No heater control.

CV0100EW (L)  
(Expanded V100 Controller)
With heater control extension.

Specifications

- Cabinet size: 450w x 125h x 250d mm  
  (19” rack 3HE) 18”w x 5”h x 9”d
- Weight: 2 kg (4.5 lb)
- Input DC (to power supply): 24 VDC
- Output DC (from power supply): 24 VDC
- Power requirements: 0-13 VDC (low level)  
  16-24 VDC (high level)  
  2.5 Amp maximum
- Initiate circuit: 0-24 VDC
- Time range: 1 ms to infinite
- Cycle rate: 0.1 to 150Hz
- Product classification: IP40
- Protection Class III
- Approvals: CE
Expert Application Testing

Nordson EFD offers a detailed process evaluation by experienced fluid dispensing experts at multiple EFD dispensing labs around the world. EFD Global Application Labs are located in the USA, Brasil, the UK, Czech Republic, France, Germany, Russia, Spain, China, Japan, Korea, and other countries for expert help, fast response, and easy convenience.

Application testing is especially helpful to customers in selecting the appropriate PICO or pneumatic jet valve components, to make sure the system meets the requirements of your specific application.

Features and Benefits

- Testing by knowledgeable, dispensing experts
- Testing in EFD global labs and/or at customer facilities
- Testing with actual customer parts and assembly fluids, or with EFD sample test materials
- Testing with a range of recommended EFD solutions, including PICO and pneumatic jetting valves and EFD automated dispensing robots
- Detailed test reports
- May include videotaped results

For details or to request an appointment, contact EFD at info@nordsonefd.com or go to www.nordsonefd.com/testing
**MicroCoat® Lubrication System**

The MicroCoat System is a different type of stock lubrication system that lets metal stampers apply the perfect amount of oil for each job. The MicroCoat is a non-contact system that applies oil as a fine, consistent film that provides complete coverage using much less oil.

Whether you are looking for steady or pulsed lubrication, these unique lubrication systems use Low Volume Low Pressure (LVLP) technology to provide uniform coverage without overspray or mist.

**Features and Benefits**
- Even, uniform coverage, top and bottom
- On the fly adjustment of oil coating
- Expandable, modular system
- Easy "plug and play" setup

MicroCoat spray valves

- **7008020** (MC785M)
  - Standard fan spray valve up to 76.2 mm (3") coverage.
- **7008013** (MC785M-WF)
  - Wide fan spray valve up to 152.4 mm (6") coverage.

MicroCoat controllers

- **7008008** (MC800)
  - MicroCoat controller with 0-100 psi (0-7 bar) regulator.
- **7023877** (MC800-15)
  - MicroCoat controller with 0-15 psi (0-1 bar) regulator.

MicroCoat fluid manifolds accept up to (4) flow controls

- **7008010** (B101)
  - Manifold with pressure sensor.
- **7008003** (B101NPS)
  - Manifold without pressure sensor.

MicroCoat tank reservoirs

- **7023843** (MC685M)
  - 3.8 liter (1 gal) acrylic see-through tank.
- **7023846** (MC686M)
  - 7.5 liter (2 gal) acrylic see-through tank.
- **7023849** (MC687M)
  - 19 liter (5 gal) stainless steel tank with low-level float switch.
- **7023850** (MC687M-DFS)
  - 19 liter (5 gal) stainless steel tank with double float switch (detects mid and low level).

Custom Options

- **7023854**
  - Fluid regulator kit provides step-down fluid pressure control. Includes MC filter assembly with fluid regulator attached.

**Flow guard**

Signals low or high flow alerts. Available in different voltages to meet your application requirements. Please contact Nordson EFD for custom configuration.

---

www.nordsonefd.com  info@nordsonefd.com  USA & Canada 800-556-3484  Europe +44 (0) 1582 666334  Asia +86 (21) 3866 9006
The MC800 Series system operates up to eight valves. Precision flow controls permit the amount of lubricant applied by each valve to be adjusted independently. Valves can be mounted above or below the stock.

When the MicroCoat system is initiated, steady air pressure supplied to the lubricant reservoir forces lubricant through the filter and flow controls, and out to the valves.

As the press starts, a 3-way air solenoid activates the system. As the valves open, Low Volume Low Pressure (LVLP) air transfers a fine, consistent film of lubricant onto the stock surface.

### Specifications

**MC785M and MC785M-WF Valves**

- **Size:** 66.3 height mm x 49.3 mm diameter (2.61” x 1.94”)
- **Weight:** 206.4 g (7.28 oz)
- **Lubricant chamber:** Aluminum, hard-coat anodized
- **Return spring:** 303 stainless steel
- **Lubricant inlet hole:** 1/8 NPT
- **Mounting:** 6 mm tapped hole
- **Air cap:** 303 stainless steel
- **Diaphragm:** Viton® with PTFE coating
- **Needle and nozzle:** 303 stainless steel
- **Nozzle diameter:** 1.17 mm (0.046”)
- **U.S. Patent #** D-398, 705

All stainless steel parts are passivated.

**MC800 Controller**

- **Cabinet size:** 14.6 W x 19.1 D x 27.6 H cm (5.75” x 7.50” x 10.88”)
- **Weight:** 4.8 kg (10.62 lb)
- **Air input required:** 60 psi (4.14 bar) minimum
- **Tank air pressure regulator:** 30 psi (2.07 bar) maximum
- **Nozzle air regulator:** 30 psi (2.07 bar) maximum
- **Cycle rate:** Up to 60 per minute
- **Pressure switch rating:** 20VA, 240V

### Applications:

- Tube Forming
- Fine Blanking
- Rust Prevention
- Can End Pull Tabs
- Cooling Fin Forming
- Foil Rolling
- Coil Stock Slitting
- Valve/Wire Coating
- Blank Stock Coating
Automated Dispensing Systems

Nordson EFD’s range of automated dispensing systems are specifically designed and configured for precise fluid dispensing using EFD syringe barrel and valve systems.

Specialized DispenseMotion™ software and fully integrated vision and laser height sensing capabilities make EFD automated systems quick to set up and easy to program. True three-dimensional motion control allows easy programming of dots, lines, circles, arcs, compound arcs, and complex patterns on different planes.

Closed-loop encoding, along with the smart vision CCD camera and laser height sensing, allows the systems to automatically adjust a dispensing program to compensate for both surface height changes and variations in product orientation.

The systems set up quickly and are easy to run, providing more time for other projects while increasing product yield.

Features and Benefits

- Produces more parts and reduces process time
- Improves product quality from more precise, accurate dispensing
- Quicker learning curve for operators — programming is easier, more visual
- Faster startup to introduce automation, with less production downtime
- Fully integrated positioning and dispensing functions

Please contact your local Nordson EFD Sales Representative for information regarding our automated solutions.
The PRO Series is EFD’s most advanced automated dispensing system. Along with specialized DispenseMotion software and fully integrated vision and laser height sensing capabilities, the system includes closed-loop encoding to deliver best-in-class dispensing performance and exceptional process control.

Features and Benefits

- Simplified setup and programming with EFD’s advanced vision-guided DispenseMotion software
- On-screen preview of the dispensing path facilitates programming
- Constant closed-loop feedback with encoding, smart vision camera, and precision laser non-contact sensing
- Streamlined file import and conversion
- Improved product quality; more precise, accurate dispensing
- Faster startup to introduce automation, less production line downtime
- Quicker learning curve for operators; programming is easier, more visual
- Produces more parts and reduces process time

### Specifications

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<thead>
<tr>
<th>Items/Models</th>
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<td>500 / 250 mm/sec (20 / 10&quot;/sec)</td>
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<td>5-phase micro stepping motor</td>
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<td>PC storage</td>
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<tr>
<td>Data Storage</td>
<td>PC storage / USB</td>
<td>PC storage / USB</td>
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<td>8 inputs / 8 outputs (16 / 16 optional)</td>
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<td>PTP and CP</td>
<td>PTP and CP</td>
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<tr>
<td>Dispensing Controller</td>
<td>External</td>
<td>External</td>
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<tr>
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<td>3 axes (3D space)</td>
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<td>DispenseMotion software</td>
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<td>Laser Height Detection</td>
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CE, RoHS, WEEE, and China RoHS Compliant
EV Series

The EV Series offers simple vision for precise fluid application in an automated solution. Along with specialized DispenseMotion software and a pencil camera, the system is quick to set up and easy to program. Platforms range from 200 x 200 mm to 500 x 500 mm, making them an ideal solution for batching or critical dispensing applications.

Features and Benefits

- Simple camera and dispensing software make setup and programming easy
- On screen preview of the dispensing path facilitates programming
- Streamlined file import and conversion
- True three-dimensional motion control
- Wide range of work envelopes
- Faster cycle and batch times
- Easy integration into any manufacturing operation

EV Series pencil camera vision makes programming patterns easier.

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<th>E4V</th>
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<td>400 / 400 / 100 mm (16 / 16 / 4&quot;)</td>
<td>500 / 500 / 150 mm (20 / 20 / 6&quot;)</td>
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<tr>
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<td>10 kg (22.0 lb)</td>
<td>10 kg (22.0 lb)</td>
<td>10 kg (22.0 lb)</td>
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<tr>
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<td>5 kg (11.0 lb)</td>
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<td>500W x 617H x 645D mm (23W x 24H x 25D&quot;)</td>
<td>690W x 717H x 815D mm (27W x 28H x 32D&quot;)</td>
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<td>Maximum Speed</td>
<td>500 / 250 mm/sec (20 / 10/sec)</td>
<td>800 / 320 mm/sec (31 / 13/sec)</td>
<td>800 / 320 mm/sec (31 / 13/sec)</td>
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<td>3-phase micro stepping motor</td>
<td>3-phase micro stepping motor</td>
<td>3-phase micro stepping motor</td>
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<td>PC storage</td>
<td>PC storage</td>
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<td>Data Storage</td>
<td>PC storage / USB</td>
<td>PC storage / USB</td>
<td>PC storage / USB</td>
<td>PC storage / USB</td>
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<td>8 inputs / 8 outputs (16 / 16 optional)</td>
<td>8 inputs / 8 outputs (16 / 16 optional)</td>
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</tr>
<tr>
<td>Drive Method</td>
<td>PTP and CP</td>
<td>PTP and CP</td>
<td>PTP and CP</td>
<td>PTP and CP</td>
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<td>Dispensing Controller</td>
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<td>3 axes (3D space)</td>
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<td>±0.02 mm</td>
<td>±0.02 mm</td>
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<td>10–40 °C (50–104 °F)</td>
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</table>

CE, RoHS, WEEE, and China RoHS Compliant
E Series

The E Series offers precise fluid application in an automated solution. The E Series relies on an easy-to-use Teach Pendant for programming. Platforms range from 200 x 200 mm to 500 x 500 mm, making them ideal for batching or critical dispensing.

Features and Benefits

- Simplified setup and programming via Teach Pendant or file importation
- True, three-dimensional motion control
- Rugged, reliable construction and small footprint
- Wide range of work envelopes
- Faster cycle and batch times
- Easy integration into any manufacturing operation

---

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item/Model</th>
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<th>E3</th>
<th>E4</th>
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<td>400 / 400 / 100 mm (16 / 16 / 4&quot;)</td>
<td>500 / 500 / 150 mm (20 / 20 / 6&quot;)</td>
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<tr>
<td>Workpiece Payload</td>
<td>5 kg (11.0 lb)</td>
<td>10 kg (22.0 lb)</td>
<td>10 kg (22.0 lb)</td>
<td>10 kg (22.0 lb)</td>
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<td>Tool Payload</td>
<td>3 kg (6.6 lb)</td>
<td>5 kg (11.0 lb)</td>
<td>5 kg (11.0 lb)</td>
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<td>400W x 517H x 645D mm (19W x 20H x 25D&quot;)</td>
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<tr>
<td>Maximum Speed</td>
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<td>800 / 320 mm/sec (31 / 13&quot;/sec)</td>
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<td>3-phase micro stepping motor</td>
<td>3-phase micro stepping motor</td>
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</table>

CE, RoHS, WEEE, and China RoHS Compliant

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E Series makes automation easy with precise performance and fast programming.

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Other Automated Systems

EFD’s multi-axis systems and in-line dispensing arms offer reliable operation for dispensing adhesives and other materials. The in-line arms offer the flexibility of working as a key part of an automated solution or a stand-alone system.

**SPECIFICATIONS**

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</tbody>
</table>

www.nordsonefd.com  info@nordsonefd.com  USA & Canada 800-556-3484  Europe +44 (0) 1582 666334  Asia +86 (21) 3866 9006
Complete Guarded System

Whether you process low viscosity materials or high viscosity pastes — EFD can help you cut costs, improve product quality and significantly reduce material consumption.

EFD offers a wide range of guarded automated dispensing systems.

Features and Benefits

• Choice of camera or interlocking door options
• Integrated control systems
• Production line interface
• Integrated dispense systems
• Emergency shut-off and reset
• Solid construction to maintain accuracy
• Bench or freestanding options available
• Compliant with EU Machinery Directive 2006/42/EC essential for all production requirements
Universal Centrifuge
ProcessMate™ 5000
The Universal Centrifuge quickly and efficiently removes entrapped air bubbles and air pockets from fluid that is packaged in syringes.

The adjustable speed control allows the user to adjust the G-force for low- to high-viscosity fluids. The electric brake can be initiated at the end of the cycle to quickly stop the rotor from spinning, saving additional process time.

Features and Benefits
- Improves process control and reduces rejected parts
- Spins up to (4) 3cc – 30cc syringes
- Fixed angle rotor
- Lid locks for safety
- All-metal cabinet construction for safety

Temperature Control Unit
ProcessMate 6500
The ProcessMate 6500 is suited for manual and automated applications using syringe barrels, dispense valves and other dispensing equipment.

The Process controller maintains temperature-sensitive dispensing processes within ±0.1° C of a desired set point, across a 10° to 40° C range (50 to 104° F).

Features and Benefits
- Compact—controls just the process, eliminating the need for machine enclosures
- Provides precise process control
- Cost effective—localized temperatures are reached within minutes
- Easy to install, adjust and use

Specifications
- Cabinet size: 19.7” x 7.1” x 16.0” cm (7.5” x 2.8” x 6.3”)
- Weight: 1.0 kg (2.2 lb)
- Input AC (to power supply): Universal Multi Voltage
  100-240 VAC, 50/60Hz
- Output DC (from power supply): 24 VDC, 1.04 Amp maximum
- Air input: 40-100 psi (2.76-7.0 bar)
- Air usage: 55 L/Min (2 CFM)
- Temperature control: ±0.1°C from 10° C to 40° C (50° F to 104° F)
- Ambient operating condition limits:
  Temperature: -10° C to 55° C (14° to 131° F)
  Humidity: 85% RH at 30° C (86° F) non-condensing
- Height above sea level: 2000 meters max. (6,562 ft.)

For use with:
- 2-part Epoxies
- Frozen Epoxies
- RTVs
- Greases
- Various Other Fluids

PRODUCTIVITY TOOLS
Vacuum Pickup System

ProcessMate 100

The ProcessMate 100 provides a simple, efficient way to lift and position small or delicate components in benchtop assembly processes.

To lift the component, the operator simply places the pickup pen on the component and presses an electric foot pedal to apply vacuum. When the component has been positioned, releasing the foot pedal stops the vacuum and releases the component.

Features and Benefits

- Faster, more precise placement than conventional tweezers
- Simple setup and operation
- Prevents damage to delicate or intricate components
- Cost-effective way to increase throughput

7012329
(ProcessMate 100 Vacuum Pickup Pen)
Includes assorted antistatic tips and vacuum cups.

Specifications

- Cabinet size: 18.3 w x 5.1 h x 8.6 cm
  (7.22” w x 2” h x 3.38” d)
- Weight: 1 kg (2.2 lb)
- Input AC (to power supply): Universal Multi Voltage
  100/240 VAC, 50/60 Hz
- Output DC (from power supply): 24 VDC, 1.04 Amp maximum
- Initiate circuits: Foot pedal, finger switch
- Approvals: CE, CSA, RoHS, WEEE & China RoHS Compliant

Note: if vacuum is only needed occasionally or there is no access to compressed air, the VacTweezer is a useful, low-cost pick-and-place tool.

Soft, see-through pickup pads make it easy to accurately place components without scratching or damage.

7024803
(VacTweezer™ Pickup Tool)
The kit includes the same assortment of silicone rubber vacuum cups and tips, along with a small squeeze bulb with a luer fitting that attaches to the tips to generate vacuum.
Solder Products

Nordson EFD is a recognized leader in developing, manufacturing and distributing non-clogging solder pastes for dispensing applications, as well as high-quality solder pastes for SMT print applications and flux pastes for repair and rework processes. We named our solder products SolderPlus®, PrintPlus® and FluxPlus™ because we offer more than superior solder pastes for dispense and print applications — we also provide award-winning, worldwide support to help our customers resolve their soldering challenges.

Quality is key. Nordson EFD solder products are manufactured and filled in our ISO9001:2008 operations. The solder and flux pastes are packaged in our own high-quality syringe barrels and cartridges to ensure consistent solder deposits and seamless integration with our electropneumatic dispensers, dispense valves and dispensing robots.

Our outstanding customer service has been recognized numerous times with Circuits Assembly’s prestigious Service Excellence Award. Our focus on innovative solutions has also been acknowledged multiple times with honors like the SMT Vision Award. We also won the “International Solar Technology Cell Award — Best Technology for Module Assembly” in recognition of our role as a key supplier in the photovoltaics market.

We invite you to experience the SolderPlus, PrintPlus and FluxPlus difference for yourself by contacting our experienced solder specialists, who will be happy to assist you in selecting the best products for optimizing your soldering process.
Solder Products

**SolderPlus Dispensing Paste** SolderPlus dispense pastes are used where solder joints are needed but printing is not possible, and solder wire is neither practical nor efficient. SolderPlus pastes are specifically formulated for dispensing applications — by EFD, a global leader in dispensing solutions. When paired with our electro-pneumatic dispensers, dispense valves and robots we can provide a complete solder paste dispensing solution.

**Features and Benefits**
- Consistent deposit sizes
- No missed deposits
- Clog-free, top-to-bottom dispensing of the entire barrel
- Packaged in EFD’s high quality barrels for best dispensing performance

**PrintPlus Print Paste** EFD’s PrintPlus solder pastes are formulated for application on printed circuit boards through stencils. The dependable performance and wide process windows helps reduce manufacturing costs by increasing first-pass yields and reducing defects, rework and rejects. PrintPlus solder pastes are available in a wide range of lead-free and leaded alloys and particle sizes, as well as many flux formulations, including no clean, RMA and water soluble with halogen-/halide-free options.

**Features and Benefits**
- Superior batch-to-batch consistency
- Bright, smooth and shiny fillets
- Consistent print quality with good print definition
- Long stencil life

**FluxPlus Paste Flux** EFD’s tacky FluxPlus paste can be applied exactly where it is needed, and will remain in position without contaminating nearby areas. FluxPlus is available in a dispense version for repairs, and a stencil print version for reballing BGAs, where its red color facilitates confirmation that flux was applied correctly.

**Features and Benefits**
- High activity
- Easy to dispense
- Available in no clean, RMA and water soluble
Solder Formulations

There are many possible options when formulating a solder paste. EFD’s general purpose solder pastes will meet the requirements of most applications. For special requirements, EFD offers a wide range of specialized formulations. To find out which solder paste is the best solution for your application, please contact your Nordson EFD solder sales specialist for a free consultation.

Paste Features

Halide-Free
We offer a range of halide-free solder pastes that meet environmental trends and regulations. Halides such as Chloride, Bromide, Fluoride or Iodide are used in some flux activators to assist in oxide removal.

Rapid Reflow
Our rapid reflow solder pastes will not spatter when heated and melted as quickly as 0.25 seconds by solder iron, induction, laser, hot bar or other rapid reflow devices.

Pin Transfer or Dipping
Solder paste that is applied by dipping a component or pin into the paste. For applications that do not lend themselves to printing or dispensing, such as pin arrays or manufacture of LEDs.

Low Residue
The quantity of flux residue left after reflow is less than with normal solder pastes. Either there is less flux to begin with, or a larger percentage evaporates as part of the reflow process.

Difficult-to-Solder Surfaces
Solder paste for difficult-to-wet metals such as Alloy42 lead finishes and highly oxidized surfaces of aged components and boards.

Gap Filling and/or Vertical Surfaces
The flux is designed to hold the alloy in place until liquidus is reached. These formulas are suited to bridging gaps, filling holes and soldering joints on vertical surfaces.

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ALLOY CHART

<table>
<thead>
<tr>
<th>Alloy: Solidus (°C)</th>
<th>Liquidus (°C)</th>
<th>Tensile Strength (psi)</th>
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</thead>
<tbody>
<tr>
<td>Sn43 Pb43 Bi14</td>
<td>144 163</td>
<td>6120</td>
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<tr>
<td>Sn62 Pb36 Ag2</td>
<td>179 189</td>
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<tr>
<td>Sn63 Pb37</td>
<td>183</td>
<td>6700</td>
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<tr>
<td>Sn60 Pb40</td>
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<td>Sn10 Pb88 Ag2</td>
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<tr>
<td>Sn10 Pb60</td>
<td>275 302</td>
<td>4600</td>
</tr>
<tr>
<td>Sn5 Pb92.5 Ag2.5</td>
<td>287 296</td>
<td>4210</td>
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<tr>
<td>Sn5 Pb95</td>
<td>308 312</td>
<td>4190</td>
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</table>

LEAD-FREE ALLOY CHART

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<th>Liquidus (°C)</th>
<th>Tensile Strength (psi)</th>
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</thead>
<tbody>
<tr>
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<td>137 139</td>
<td>4641</td>
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<tr>
<td>Sn42 Bi58</td>
<td>138</td>
<td>8000</td>
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<tr>
<td>Sn96.5 Ag3.0 Cu0.5</td>
<td>217 219</td>
<td>8900</td>
</tr>
<tr>
<td>Sn96.3 Ag3.7</td>
<td>221</td>
<td>8900</td>
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<td>Sn95 Ag5</td>
<td>221 245</td>
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<td>Sn100</td>
<td>MP</td>
<td>232 1800</td>
</tr>
<tr>
<td>Sn99.3 Cu0.7</td>
<td>227</td>
<td>n/a</td>
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<tr>
<td>Sn95 Sn5</td>
<td>232 240</td>
<td>5900</td>
</tr>
<tr>
<td>Sn89 Sn10.5 Cu0.5</td>
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<td>Sn90 Sn10</td>
<td>250 257</td>
<td>n/a</td>
</tr>
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</table>

POWDER SIZE CHART

<table>
<thead>
<tr>
<th>Powder Type</th>
<th>Powder Size (micron)</th>
<th>Gulting Lead Pitch (mm)</th>
<th>Square/Circle Aperture (mm/lin)</th>
<th>Dispense Dot Dia. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>45-75μ</td>
<td>0.65 / 0.025</td>
<td>0.65 / 0.025</td>
<td>0.80 / 0.030</td>
</tr>
<tr>
<td>III</td>
<td>25-45μ</td>
<td>0.50 / 0.020</td>
<td>0.50 / 0.020</td>
<td>0.50 / 0.020</td>
</tr>
<tr>
<td>IV</td>
<td>20-38μ</td>
<td>0.30 / 0.012</td>
<td>0.30 / 0.012</td>
<td>0.30 / 0.012</td>
</tr>
<tr>
<td>V</td>
<td>15-25μ</td>
<td>0.20 / 0.008</td>
<td>0.15 / 0.006</td>
<td>0.25 / 0.010</td>
</tr>
<tr>
<td>VI</td>
<td>5-15μ</td>
<td>0.10 / 0.004</td>
<td>0.05 / 0.002</td>
<td>0.10 / 0.004</td>
</tr>
</tbody>
</table>

Flux Choices

No Clean (NC)
NC flux has low activity and is suited to easily solderable surfaces. NC residue is clear, hard, non-corrosive, non-conductive, and designed to be left on your assembly. Residue may be removed with an appropriate solvent.

Rosin Mildly Activated (RMA)
Most RMA flux is fairly low in activity and best suited to easily solderable surfaces. RMA flux residue is clear, soft, non-corrosive, and non-conductive. Cleaning is optional. Residue may be removed with an appropriate solvent.

Rosin Activated (RA)
RA flux has higher activity than RMA for moderately oxidized surfaces. RA flux residue is corrosive and should be removed as soon as possible after reflow to prevent damage to your assembly.

Water Soluble (WS)
WS flux comes in a wide range of activity levels for soldering to even the most difficult surfaces. WS flux residue is corrosive and should be removed as soon as possible after reflow to avoid damage to your assembly.
Thermal Compounds

TC70 thermal compounds are a product line of unique synthetic-based thermal greases with excellent thermal conductivity. They are used in industries such as electronics (computer, appliance, wireless, etc.), automotive, and electrical to ensure quick, efficient heat transfer and dissipation. The primary advantage of these non-silicone products is long-term material stability. TC70 compounds will not leach, dry, harden, or melt in normal industrial use.

### Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>TC70</th>
<th>TC70-340WC</th>
<th>TC70-57000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistency Penetration, worked, 60x</td>
<td>320</td>
<td>340</td>
<td>250-350</td>
</tr>
<tr>
<td>Specific Gravity at 25°C</td>
<td>2.7</td>
<td>2.7</td>
<td>N/A</td>
</tr>
<tr>
<td>Bleed 24 Hrs., %Weight at 200°C</td>
<td>0.1</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Evaporation</td>
<td>0.6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Thermal Conductivity 30°C W/m °K</td>
<td>0.92</td>
<td>1.3</td>
<td>2.4</td>
</tr>
<tr>
<td>Electrical Properties</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dielectric strength 0.05” gap, V/mil</td>
<td>305</td>
<td>265</td>
<td>N/A</td>
</tr>
<tr>
<td>Dielectric constant 25°C, 1,000 Hz</td>
<td>4.50</td>
<td>5.02</td>
<td>N/A</td>
</tr>
<tr>
<td>Dissipation factor 25°C, 1,000 Hz</td>
<td>0.0029</td>
<td>0.0022</td>
<td>N/A</td>
</tr>
<tr>
<td>Volume Resistivity Ohm-cm 1.65 x 10^15</td>
<td>20.0 x 10^15</td>
<td>&lt; 0.01</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-40°C to 200°C</td>
<td>-40°C to 180°C</td>
<td>-40°C to 200°C</td>
</tr>
<tr>
<td>Appearance</td>
<td>Smooth, Off-White Paste</td>
<td>Smooth, White Paste</td>
<td>Smooth, Paste</td>
</tr>
</tbody>
</table>

### Thermal Compound Choices

#### TC70
The most widely used non-silicone thermal compound. Major applications include mounting power transistors, power resistors, diodes and other semiconductor devices, coupling heat generating assemblies to chassis, heat transfer medium on ballast, thermal joints, thermocouple wells, and for any device where efficient cooling is required.

#### TC70-340WC
Ideally suited for applications where a device may need to be removed from the heat sink at a later time and cleans up with only water. This non-silicone thermal compound has high thermal conductivity, excellent dielectric properties and will spread into a very thin bond line for extremely low thermal resistance.

#### TC70-57000
A non-silicone thermal compound with premium electrical and thermal conductivity. Major applications include high power electronic components such as power resistors, rectifiers, transistors and transformers; low power electronic applications such as static drain, grounding, soft electronic connections, heat dissipation, and assembly protection as well as high power electrical applications to improve the operational efficiency of high power switches and other sliding metal contacts.

### TC70-57000 PACKAGE APPLICATION

<table>
<thead>
<tr>
<th>TC70-57000</th>
<th>PACKAGE</th>
<th>APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>7028341</td>
<td>10cc barrel, 50 g</td>
<td>For use with dispensers</td>
</tr>
<tr>
<td>7028342</td>
<td>jar, 1 oz / 28 g</td>
<td>For manual application</td>
</tr>
<tr>
<td>7028344</td>
<td>jar, 1 lb / 454 g</td>
<td>For manual application</td>
</tr>
</tbody>
</table>
Atlas Filling Systems

EFD filling systems provide a fast, neat and easy way to transfer greases, silicones and other non-pourable fluids from cartridges and bulk containers into 3, 5, 10, 30 and 55cc syringe barrels.

Manual filling systems are a cost-effective way to eliminate trips to the refilling station and keep production lines running smoothly.

Barrel filling stations are available in sizes 2.5 fl oz, 6 fl oz, 12 fl oz, 20 fl oz and 32 fl oz (75 ml, 180 ml, 360 ml, 600 ml and 960 ml) cartridges.

Features and Benefits

- See-through design allows maximum amount of material usage per cartridge
- Fast and accurate filling
- Accommodates 3cc to 55cc syringes
- Small footprint allows easy positioning of multiple units
- Prefilling syringes increases productivity and reduces labor costs

7022446
(922BL)
2.5 fl oz (75 ml) cartridge. Comes complete with 0-100 psi (0-7.0 bar) regulator and gauge, retainer and cap assembly with toggle switch, fittings, stand, cartridge with plunger and 5cc, 10cc and 30/55cc syringe barrel fill level plugs.

7022447
(926BL)
6 fl oz (180 ml) cartridge. Ships with the same parts as the 922BL.

7022445
(920BL)
12 fl oz (360 ml) cartridge. Ships with the same parts as the 922BL.

7013568
20 fl oz (600 ml) cartridge. Ships with the same parts as the 922BL.

7013901
32 fl oz (960 ml) cartridge. Ships with the same parts as the 922BL.
Atlas Filling Systems

1/10 Gallon Caulking Tube  Filling systems make it simple to transfer silicones and other materials supplied in 1/10 gal cartridges to 3cc, 5cc, 10cc, 30cc or 55cc syringe barrels without waste, mess or air bubbles.

Automatic Syringe Filling Systems  For extremely fast, consistent, and cost-effective volumetric filling of pastes, gels and other non-pourable assembly fluids, specify our automatic systems. These systems rapidly fill syringe barrels with ± 2% accuracy at the press of a button. Syringes are bottom filled, allowing air to escape for a consistent volumetric fill. Accommodates 3cc, 5cc, 10cc, 30cc and 55cc syringe barrels.

7022452  
(940BL)  
1/10 Gallon Caulking Tube  
Comes complete with 0-60 psi (0-4.1 bar) regulator and gauge, retainer and cap assembly with toggle switch, fittings, stand, and 3cc, 5cc, 10cc and 30/55cc size syringe barrel fill level plugs.

7022070  
(8000BF-PW)  
Use with reactive fluids that require a disposable fluid path at pressures up to 80 psi (5.5 bar). System ships complete with microprocessor controller, five-micron filter regulator, fittings and foot pedal.

7022064  
(8000BF-HF)  
Use with cartridges and tanks at pressures up to 100 psi (7.0 bar). Ships with the same parts as 8000BF-PW.

7022068  
(8000BF-HPA)  
Use with very thick fluids at pressures up to 2,500 psi (172 bar). Ships with the same parts as 8000BF-PW.
CARTRIDGE FILLING SYSTEM

Cartridge Filling System

The Atlas™ Cartridge Filling System provides a simple, cost-effective way to fill 2.5 to 32 ounce cartridges with greater accuracy at lower cost, making it ideal for:

- Material suppliers
- Custom packagers
- Manufacturers who down-pack from larger containers

Easy to set up and operate, the Atlas Cartridge Filling System allows virtually any operator to bottom-fill 2.5 ounce to 32 ounce cartridges with consistent amounts of material.

Features and Benefits

- Accurate, repeatable filling
- Eliminates rework and overfills
- Fast, easy changeovers
- Handles viscosities from 2000 cps and up
- Sensors work with all color cartridges and pistons

7014123
(Atlas Cartridge Filling System)
Includes tool kit, accessory kit, desktop power supply with AC cord and Quick Start Guide.

Specifications

- Cabinet size: 52.3" W x 71.1" H x 22.9" D (21" W x 28" H x 9")
- Max extended tower height: 100 cm (39.4")
- Weight: 9.1 kg (20 lb)
- Input AC (to power supply): Universal Multi Voltage 100/240 VAC, 50/60Hz
- Machine power requirement: 24 VDC, 0.5 Amp maximum
- Max. input shop air pressure: 120 psi (8.3 bar)
- An electrical fuse: 250 volt, 1 Amp, slow blow, 3AG cartridge

REPLACEMENT PARTS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7022019</td>
<td>Power supply, 30 W</td>
</tr>
<tr>
<td>7015447</td>
<td>Fuse kit, CF 3 (3/pkg)</td>
</tr>
<tr>
<td>7015377</td>
<td>Magnetic switch assembly, CF</td>
</tr>
<tr>
<td>7015378</td>
<td>Solenoid valve, CF</td>
</tr>
<tr>
<td>7015379</td>
<td>Plunger, CF</td>
</tr>
<tr>
<td>7015380</td>
<td>Magnetic switch</td>
</tr>
<tr>
<td>7013449</td>
<td>736HPA-NV valve</td>
</tr>
<tr>
<td>7015448</td>
<td>Kit, air cylinder assembly with switch</td>
</tr>
<tr>
<td>7015458</td>
<td>Cartridge detect switch, CF</td>
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<tr>
<td>7015460</td>
<td>Lever arm, CF</td>
</tr>
</tbody>
</table>

Please assess the properties of your fluid before trying the Atlas Filling System. Fluids that are thick enough to have minimal dripping or spill out when bottom-filled will work best with the Atlas system.
2-COMPONENT (2K) SYSTEMS
Static Mixers

EFD offers a wide variety of high-quality static mixers that ensure optimum performance of adhesives and other two-component materials by dividing and recombining the materials into a homogeneous stream. Reusable metal mixers with either metal or plastic elements are available as well as disposable plastic mixers for single-use dispensing. Disposable mixers are available in two different geometries: Spiral Mixers™ and Turbo Mixers™ (square).

**Series 85 In-Line Spiral Stainless Steel Pipe Mixers**
Designed for high-pressure applications that feature sturdy metal housings with Series 120 disposable plastic mixing elements.

**Series 100 Spiral Stainless Steel Pipe Mixers**
Designed with all stainless steel parts, the mixer is rugged and reliable. The modular construction allows the elements to be removed for easy cleaning.

**Series 160 Disposable Plastic Spiral Bell Mixers**
Designed to be used with reactive materials. The mixing nozzle has a bell inlet that fits on large volume cartridge systems and most meter mix dispensers.

**Series 180A Disposable Plastic Turbo Bell Mixers**
Square disposable static mixer ensures superior mixing performance and less retain volume.

**Series 190 Disposable Plastic Spiral Bayonet Mixers**
The Series 190 mixer is designed for use with 50mL two-component cartridges. Typical applications include mixing epoxies, urethanes, acrylics, and silicones.

**Series 295 Disposable Plastic Turbo Bayonet Mixers**
Patented design channels the fluids from the walls into the center of the mixer and from the center to the walls. For use with 50mL two-component cartridges.

For more information see www.nordsonefd.com/2K-Catalog
### Dot Volumes

**Volume of Dots**

Volume = \( D^3 \times 0.5236 \div 2 \)

(* 1/2 the volume of a sphere)

<table>
<thead>
<tr>
<th>dot</th>
<th>mm</th>
<th>inches</th>
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<tbody>
<tr>
<td>0.5</td>
<td>0.02</td>
<td>0.0003</td>
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<td>0.536</td>
<td></td>
</tr>
<tr>
<td>19.1</td>
<td>0.75</td>
<td>1.810</td>
<td></td>
</tr>
</tbody>
</table>

### Bead Volumes

**Volume of Beads**

<table>
<thead>
<tr>
<th>Bead diameter</th>
<th>Volume per linear inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>inches</td>
</tr>
<tr>
<td>1.6</td>
<td>0.06</td>
</tr>
<tr>
<td>2.4</td>
<td>0.09</td>
</tr>
<tr>
<td>3.2</td>
<td>0.12</td>
</tr>
<tr>
<td>4.8</td>
<td>0.19</td>
</tr>
</tbody>
</table>

### Measurement Conversions

**Volume**

- 1 fluid ounce = 29.57 cubic centimeters
- 1 gallon = 3785 cubic centimeters
- 1 gallon = 3.785 liters
- 1 gallon = 128 fluid ounces
- 1 gallon = 4 quarts
- 1 gallon = 8 pints
- 1 gallon = 16 cups
- 1 gallon = 231 cubic inches
- 1 gallon = 0.134 cubic feet
- 1 liter = 0.264 gallons
- 1 liter = 1.06 quarts
- 1 liter = 1000 milliliters
- 1 cubic foot = 1728 cubic inches
- 1 cubic foot = 7.48 gallons
- 1 cubic inch = 16.387 cubic centimeters
- 1 cubic centimeter = 1 milliliter
- 1 microliter = 0.001 cc's
- 1 microliter = 1000 nanoliters
- 1 nanoliter = 0.000001 cc's
- 1 nanoliter = 1000 picoliters

**Weight**

- 1 kilogram = 1000 grams
- 1 kilogram = 2.2 pounds
- 1 pound = 16 ounces
- 1 pound = 453.6 grams
- 1 pound = 7000 grains
- 1 ounce = 28.35 grams

**Length**

- 1 micron = 0.0000394 inches
- 1 micron = 0.001 millimeters
- 1 centimeter = 10 millimeters
- 1 centimeter = 10,000 microns
- 1 inch = 2.54 centimeters
- 1 inch = 25.4 millimeters
- 1 inch = 25,400 microns
- 1 foot = 30.48 centimeters
- 1 yard = 91.44 centimeters
- 1 mile = 5280 feet
- 1 mile = 1.6 kilometers

**Pressure**

- 1 psi = 0.069 bar
- 1 psi = 0.070 kgf/cm²
- 1 psi = 6894.8 Pa
- 1 psi = 27.680 in H2O@4°C
Fluid Viscosities

Dispensing conditions are driven by many factors. When selecting the correct system for your application, the material's properties, including viscosity and deposit size, are important considerations.

Viscosity is the measurement of a fluid’s internal resistance to flow. This is usually designated in units of centipoise or poise, but can be expressed in other measurements as well. Refer to the chart to the right.

Approximate Viscosities of Common Materials (at room temperature — 21°C (70°F))

<table>
<thead>
<tr>
<th>Material</th>
<th>Viscosity in Centipoise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Kerosene</td>
<td>10</td>
</tr>
<tr>
<td>Anti-freeze or Ethylene Glycol</td>
<td>15</td>
</tr>
<tr>
<td>Motor Oil SAE10</td>
<td>50 - 100</td>
</tr>
<tr>
<td>Motor Oil SAE30 or Maple Syrup</td>
<td>150 - 200</td>
</tr>
<tr>
<td>Motor Oil SAE40 or Castor Oil</td>
<td>250 - 500</td>
</tr>
<tr>
<td>Motor Oil SAE60 or Glycerin</td>
<td>1000 - 2000</td>
</tr>
<tr>
<td>Corn Syrup or Honey</td>
<td>5000 - 10,000</td>
</tr>
<tr>
<td>Molasses</td>
<td>10,000 - 25,000</td>
</tr>
<tr>
<td>Chocolate Syrup</td>
<td>50,000 - 10,000</td>
</tr>
<tr>
<td>Ketchup or Mustard</td>
<td>150,000 - 250,000</td>
</tr>
<tr>
<td>Tomato Paste or Peanut Butter</td>
<td>1,000,000 - 2,000,000</td>
</tr>
<tr>
<td>Shortening or Lard</td>
<td>5,000,000 - 10,000,000</td>
</tr>
<tr>
<td>Caulking Compound</td>
<td>100,000,000</td>
</tr>
</tbody>
</table>

Conversion Factors

<table>
<thead>
<tr>
<th>Centipoise</th>
<th>1 Poise</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>1 mPa-s (Millipascal Second)</td>
</tr>
<tr>
<td>1 Poise</td>
<td>0.1 P (Pascal Second)</td>
</tr>
<tr>
<td>Centipoise</td>
<td>Centistoke x Density</td>
</tr>
</tbody>
</table>

Typical Assembly Materials Dispensed with EFD Systems

- activators
- anaerobics
- coatings
- cyanoacrylates
- electrolytes
- epoxies
- fluxes
- gels
- greases
- lubricants
- oils
- marking inks
- RTV/sealants
- solder pastes
- solvents
- UV-cure & light-cure
- white glue
Worldwide markets: one customer at a time.

From catheters in Ireland to mobile phones in Malaysia, from light bulbs in Hungary to connectors in Puerto Rico, and from optoelectronics in Singapore to automotive parts in Brazil, Nordson EFD precision fluid dispense systems are a critical part of today’s global production.

For Nordson EFD sales and service in over 40 countries, contact EFD or go to www.nordsonefd.com

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