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.

Contents

Introduction ........................................ 1-9

Industries ........................................... 1-9

Fluid Dispensing Systems .................. 10-20

Ultimus™ Precision Dispensers .......... 11-13
Performus™ General Purpose Dispensers 14-15
Dispenser Accessories ....................... 16
Relius™ Tube Coating Systems .......... 17
Relius Handheld Dispense Valves ........ 18
Relius Portable Dispensers ............... 19
Special Purpose Dispensing Systems .... 20

Nordson® Optimum® Component Systems 21-31

Syringe Barrels/Pistons/Adapters .... 22-23
Dispensing Tips ....................... 24-26
Cartridge Systems ......................... 27-31

Precision Valve Systems ................. 32-44

Diaphragm Valves ......................... 34-37
Piston Valves .......................... 38-39
Needle Valves .................................. 40-41
High Pressure Valve ...................... 42
Auger Valves .................................. 43
Radial Spinner System ..................... 44

Spray Valve Systems ...................... 45-51

General-Purpose Spray Valves ........ 47
Microspray Valve ......................... 48
Spray Marking System .................... 49
Aseptic Spray Valves ................. 50
Radial Spray Valve ....................... 51
ValveMate™ Controllers ................. 52-57
Fluid Reservoirs ......................... 58-59
Cartridge Retainer Systems ........... 60
Bulk Unloaders .......................... 61
Valve Accessories and Fittings .... 62-66
Valve and Controller Features ........ 67
Valve Applications ....................... 68-69
Valve and Reservoir Selection Guide ... 70-71
PICO™ Dispensing Systems ........... 72-79
MicroCoat® Lubrication System .... 80-81
Dispensing Robots ....................... 82-83
Productivity Tools ....................... 84-85
Universal Centrifuge ..................... 84
Temperature Control Unit ............. 84
Vacuum Pickup System ................. 85
Solder Solutions ......................... 86-89
Thermal Compounds ..................... 90
Atlas™ Filling Systems ................. 91-93
2-Component (2K) Systems .......... 94-105
Volumes and Conversions .......... 106
Viscosity Reference Chart ............. 107
Notes ........................................ 108

Note: Specifications and technical details are subject to engineering changes without prior notification.
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

Fluids dispensed:
- Lubricants
- Solvents
- Sealants
- Adhesives
- Epoxies
- Anaerobics
- Braze Pastes
- Solder Pastes

Dispensing Applications:

- Turbines
- Flight Recorders
- GPS Systems
- Seating
- Cockpits
- Instrument Panels
- Measurement Instruments
- Military Munitions
- Propellant Parts
- Wire Harnesses
- Electrical Systems
- Satellites
- Landing Gear
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.

A recent report estimated the size of the global LED market at USD $7.4 billion in 2009, expected to grow to $14.3 billion by 2013.* 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.

* iSuppli

“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

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

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
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 pre-assembled configuration that will make your filling process more efficient and cost-effective.

INDUSTRIES

Fluids commonly packaged:
- Greases
- Bait Gels
- Thermal Compounds
- Lubricants
- Adhesives
- Epoxies
- Braze Pastes
- Solder Pastes
- RTV Sealants
- Silicones

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

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

Fluids dispensed:
- Lubricants
- Beverages
- Cosmetics
- Scents/Flavors
- Food Coatings
- Creams
- Greases
- Adhesives
- Cyanoacrylates
- Sealants
- Marking Inks
- Release Agents

Dispensing Applications:

- Filling Perfume Bottles
- Filling/Topping Off Foil Packets and Other Containers
- Shrink Wrapping
- Coating Food with Scent/Flavoring
- Lubricating Can Stock, Can Ends and Pull Tabs
- Lubricating Foil Slitters
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 inches 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

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

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

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 30 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

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

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

Interest in photovoltaics continues to grow, due to increased awareness of global warming and the shortage in energy worldwide. A recent report estimated the size of the global photovoltaic market to be 20.275 GW in 2012 and growing to 41.791 GW in 2015.*

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 electrically conductive adhesive to bus bars on cells and ribbons used for cell interconnection
- 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

* Isuppli

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 a new 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.

Specifications

- Cabinet size: 22.5w x 9.50H x 19.9D cm (8.86"W x 3.74"H x 7.85"D)
- Weight: 3.4 kg (7.7 lb)
- Cycle rate: Exceeds 600 cycles per minute
- Time range: 0.0001 to 9.9999 seconds
- Input AC (to power supply): 100-240 VAC ±10%, 0.5 Amp, 50/60Hz
- Output DC (from power supply): 24 VDC, 1.66 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, RoHS, WEEE & China RoHS Compliant
- Warranty: 1 year, limited

Each dispenser kit includes:

- (1) adapter assembly
- (2) boxes of syringe barrels/pistons
- (2) boxes of dispensing tips
- (1) box of tip caps
- Omnidirectional foot pedal
- Cabinet-mounted barrel holder

Specifically designed to work with the Ultimus V, the patent-pending Optimeter™ provides even greater control when dispensing all fluids by automatically increasing airflow as the syringe barrel empties.
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.

Specifications

- **Cabinet size:** 18.4W x 8.1H x 32.3D cm (7.25"W x 3.18"H x 12.73"D)
- **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

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

See page 16 for a complete list of dispensing accessories.

Each dispenser kit includes:
(2) boxes of syringe barrels/ red pistons
(2) boxes of dispensing tips
(2) boxes of tip caps
foot pedal
cabinet-mounted barrel holder
Ultimus I, II and III

Featuring simultaneous digital display of all dispenser settings and time adjustment as fine as .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: 14.3w x 18.1h x 17.3d 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.
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

<table>
<thead>
<tr>
<th>Model</th>
<th>Feature Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012330 (Performus I)</td>
<td>Vacuum</td>
</tr>
<tr>
<td>7012331 (Performus II)</td>
<td>LED P I/O</td>
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<tr>
<td>7012332 (Performus III)</td>
<td>LED Display, Timer</td>
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<tr>
<td>7012333 (Performus IV)</td>
<td>LED Display, Timer, Vacuum</td>
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<td>7012334 (Performus V)</td>
<td>LED Display, Timer, I/O</td>
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<td>7012335 (Performus VI)</td>
<td>Teach, LED Display, Timer, Vacuum, Input/Output</td>
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<tr>
<td>7012336 (Performus VII)</td>
<td>Teach, LED Display, Timer, Vacuum Display, Input/Output</td>
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Teach, LED Display, Timer, I/O
## Performus Models and Features

<table>
<thead>
<tr>
<th>Models</th>
<th>Dispense Time Display</th>
<th>Air Pressure Display</th>
<th>Vacuum Display</th>
<th>Adjustability</th>
<th>Modes of Operation</th>
<th>Time Range</th>
<th>Air Pressure Range</th>
<th>Input/Output</th>
<th>Universal Voltage</th>
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<td>Performus I</td>
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</tbody>
</table>

### Specifications

- **Cabinet size:** 18.3 w x 5.1 h x 8.6 d 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

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

See page 16 for a complete list of dispensing accessories.
### DISPENSER 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>
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<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>
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<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>
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<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>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>Provides splash protection</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7017119</td>
<td>Finger switch (Round DIN Connector)</td>
<td>Provides full-barrel swivel, horizontal and vertical adjustment. Accepts all EFD barrels.</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>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>

### PART # | ACCESSORY | DESCRIPTION
| 7013299 | Dispensing tip sampler kit | Includes a selection of various types and styles of dispensing tips, pistons, tip and end caps—158 pieces |
| 7024803 | VacTweezer™ pickup tool | Useful, low cost pick-and-place tool with staticide treated kit. Includes (7) tips, (5) pad sizes |
| 7002002 | Five micron filter regulator | Provide proper air filtering for all dispensers. Order if you do not have a clean, dry, filtered factory air supply. |
| 7016548 | Five micron filter regulator with coalescing filter | Five micron filter regulator with coalescing filter |
| 7021515 | Coalescing filter assembly only | Recommended for systems dispensing cyanoacrylates |
| 7016540 | Filter element replacement kit | Removes liquid aerosols from air supply |
Tube Coating Systems

Relius™ tube coating systems are a fast, foolproof way to apply accurate, repeatable amounts of solvents and UV-cure adhesives on tubing, fittings and other cylindrical components.

Instead of dipping components into dishes of solvent or applying UV-cure adhesive by hand, the operator simply inserts the end of the tubing or fitting into the applicator port on the side of the Relius System. The correct amount of fluid is automatically applied every time, regardless of who performs the operation.

Features and Benefits

- Coats ID, OD or both surfaces simultaneously
- Makes coating process less operator-dependent
- Eliminates fluid contamination and waste
- Ideal for semi-automated and fully automated processes
- Closed tank reduces vapors
- Greater process control
- Can also be used for silicone oils

Specifications

- Size: 26.0H x 19.7D cm (10.3”H x 7.8”D)
- Weight: 3.7 kg (8.2 lb)
- Maximum fluid capacity: 1.0 liter
- Air requirements: 60-90 psi (4.2-6.3 kgf/cm²) regulated clean, dry, filtered air supply
- Operating temperature range: 10°C to 46°C (50°F to 115°F)
- Maximum recommended speed: 7-10 strokes per minute (in high range)
- Minimum recommended speed: 2-6 strokes per minute (in low range)
- Warranty: 1 year

UV Adhesive Tube Coating System

- Construction: Anodized aluminum, stainless steel, PTFE, acetal, UHMW polyethylene

Solvent Tube Coating System

- Construction: Anodized aluminum, stainless steel, PTFE, acetal, UHMW polyethylene, nickel-plated brass

Replacement Parts

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012500</td>
<td>Adapter O-ring kit, (10/pkg)</td>
</tr>
<tr>
<td>7012499</td>
<td>Disposable tank liner</td>
</tr>
<tr>
<td>7012501</td>
<td>(UV Adhesive Tube Coating System)</td>
</tr>
<tr>
<td>7028248</td>
<td>(2) spare adapter screws</td>
</tr>
</tbody>
</table>
Handheld Dispense Valves

Relius 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

Key
G Recommended
X Do not use

<table>
<thead>
<tr>
<th>Fluids</th>
<th>MODELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaerobics</td>
<td>752V-HL 740V-HL 725-HL</td>
</tr>
<tr>
<td>Oils</td>
<td>X X X</td>
</tr>
<tr>
<td>Cyanoacrylates</td>
<td>X X X</td>
</tr>
<tr>
<td>White Glues</td>
<td>X X X</td>
</tr>
<tr>
<td>Greases</td>
<td>X X X</td>
</tr>
<tr>
<td>Braze Pastes</td>
<td>X X X</td>
</tr>
<tr>
<td>Paste Fluxes</td>
<td>X X X</td>
</tr>
<tr>
<td>Solvents</td>
<td>X X X</td>
</tr>
<tr>
<td>Vinyl Adhesives</td>
<td>X X X</td>
</tr>
</tbody>
</table>

DISPENSING COMPONENTS

Disposable polyethylene nozzles with 1/4 NPT to fit 725-HL valves. May be cut as required. (10) per package.

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7018555</td>
<td>63.5 mm x 3.1 mm opening</td>
</tr>
<tr>
<td></td>
<td>(2.1/2&quot; long x 1/8&quot;)</td>
</tr>
<tr>
<td>7018557</td>
<td>63.5 mm x 1.6 mm opening</td>
</tr>
<tr>
<td></td>
<td>(2.1/2&quot; long x 1/16&quot;)</td>
</tr>
</tbody>
</table>

Metal nozzles 38 mm (1 1/2") long with 1/4 NPT to fit 725-HL valves

<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 (.150&quot;)</td>
</tr>
<tr>
<td>7014851</td>
<td>8</td>
<td>3.4 mm (.135&quot;)</td>
</tr>
<tr>
<td>7014848</td>
<td>10</td>
<td>2.7 mm (.106&quot;)</td>
</tr>
<tr>
<td>7014842</td>
<td>12</td>
<td>2.2 mm (.085&quot;)</td>
</tr>
<tr>
<td>7014844</td>
<td>14</td>
<td>1.6 mm (.063&quot;)</td>
</tr>
<tr>
<td>7014846</td>
<td>16</td>
<td>1.2 mm (.047&quot;)</td>
</tr>
</tbody>
</table>
Portable Dispensers

Versatile and inexpensive, Relius 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, Relius 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</td>
</tr>
<tr>
<td>Coatings</td>
<td>HPD</td>
</tr>
<tr>
<td>Cyanacrylates</td>
<td></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></td>
</tr>
<tr>
<td>Greases</td>
<td></td>
</tr>
<tr>
<td>Oils</td>
<td></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></td>
</tr>
<tr>
<td>UV Cure</td>
<td></td>
</tr>
</tbody>
</table>

| 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 |

**Key**
- ● Recommended
- ▲ Satisfactory
- X Do not use
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

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.

Features and Benefits
- Lightweight aluminum handle—as easy to use as a pen
- Applies deposits as small as 0.18 mm (0.007") diameter
- Fluid reservoir tips are molded with a UV-block additive
- Ideal for consistent microdots of 2-part epoxies and UV-cure adhesives

MIKROS REPLACEMENT PARTS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7018889</td>
<td>Loading tubes; 38 mm (1.5&quot;) long. (50/pkg.)</td>
</tr>
<tr>
<td>7018902</td>
<td>Piston installation tool. Sold individually.</td>
</tr>
<tr>
<td>7018893</td>
<td>Neoprene finger grip. Sold individually.</td>
</tr>
<tr>
<td>7018899</td>
<td>Mikros air seal O-ring. NBR (10/pkg.)</td>
</tr>
<tr>
<td>7018901</td>
<td>Mikros air seal O-ring. Viton (10/pkg.)</td>
</tr>
<tr>
<td>7018897</td>
<td>Mikros dampening O-ring. NBR (10/pkg.)</td>
</tr>
</tbody>
</table>

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

MIKROS 0.25CC FLUID RESERVOIR TIPS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Gauge</th>
<th>ID</th>
<th>Hub Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>7018881</td>
<td>30</td>
<td>0.2 mm (.006&quot;) lavender</td>
<td></td>
</tr>
<tr>
<td>7018887</td>
<td>33</td>
<td>0.1 mm (.004&quot;) grey</td>
<td></td>
</tr>
</tbody>
</table>

Polypropylene reservoirs with stainless steel chamfered tips. Packaged with tip protectors. (25) tips and pistons per box.

<table>
<thead>
<tr>
<th>Part #</th>
<th>Gauge</th>
<th>ID</th>
<th>Hub Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>7018884</td>
<td>32</td>
<td>0.1 mm (.004&quot;) yellow</td>
<td></td>
</tr>
</tbody>
</table>

Polypropylene reservoirs with stainless steel blunt-end tips. Packaged with tip protectors. (25) tips and pistons per box.
Optimum®

The standard in fluid dispensing

What makes EFD’s Optimum dispensing components better than the rest? Engineered Fluid Dispensing™. Each patent pending 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 new, 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 five 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 new design that facilitates installation/removal, and a positive safety locking action that prevents accidental disengagement.

New 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>Clear Barrels</th>
<th>Blue LV Barrier™ Piston</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>3cc</td>
<td>7012074</td>
<td>7012085</td>
<td>7012091</td>
<td>7012075</td>
<td>n/a</td>
<td>(50)</td>
</tr>
<tr>
<td>5cc</td>
<td>7012096</td>
<td>7012103</td>
<td>7012109</td>
<td>n/a</td>
<td>n/a</td>
<td>(40)</td>
</tr>
<tr>
<td>10cc</td>
<td>7012114</td>
<td>7012126</td>
<td>7012130</td>
<td>7012118</td>
<td>n/a</td>
<td>(30)</td>
</tr>
<tr>
<td>30cc</td>
<td>7012136</td>
<td>7012145</td>
<td>7012149</td>
<td>7015116</td>
<td>n/a</td>
<td>(20)</td>
</tr>
<tr>
<td>55cc</td>
<td>7012153</td>
<td>7012160</td>
<td>7012164</td>
<td>n/a</td>
<td>n/a</td>
<td>(15)</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>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>3cc</td>
<td>7012072</td>
<td>7012083</td>
<td>7012089</td>
<td>7015616</td>
<td>(50)</td>
</tr>
<tr>
<td>5cc</td>
<td>7012104</td>
<td>7012101</td>
<td>7012107</td>
<td>7015617</td>
<td>(40)</td>
</tr>
<tr>
<td>10cc</td>
<td>7012112</td>
<td>7012122</td>
<td>7012128</td>
<td>7015618</td>
<td>(30)</td>
</tr>
<tr>
<td>30cc</td>
<td>7012134</td>
<td>7012143</td>
<td>7012147</td>
<td>7015619</td>
<td>(20)</td>
</tr>
<tr>
<td>55cc</td>
<td>7012155</td>
<td>7012158</td>
<td>7012162</td>
<td>7015620</td>
<td>(16)</td>
</tr>
</tbody>
</table>

Note: 30cc 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).
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 five 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.

### SYRINGE BARREL PISTONS

<table>
<thead>
<tr>
<th>Size</th>
<th>White SmoothFlow</th>
<th>Beige SmoothFlow</th>
<th>Red SmoothFlow</th>
<th>Orange Flatwall</th>
<th>Blue LV Barrier</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>3cc</td>
<td>7012166</td>
<td>7012170</td>
<td>7012168</td>
<td>7012321</td>
<td>7014602</td>
<td>50</td>
</tr>
<tr>
<td>5cc</td>
<td>7012172</td>
<td>7012176</td>
<td>7012174</td>
<td>7012323</td>
<td>n/a</td>
<td>40</td>
</tr>
<tr>
<td>10cc</td>
<td>7012178</td>
<td>7012182</td>
<td>7012180</td>
<td>7012325</td>
<td>7014600</td>
<td>30</td>
</tr>
<tr>
<td>30, 55cc</td>
<td>7012184</td>
<td>7012188</td>
<td>7012186</td>
<td>7012327</td>
<td>7014598</td>
<td>20</td>
</tr>
</tbody>
</table>

**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.

### SNAP-TIGHT END AND TIP CAPS

Snap-on end caps provide tight seal.

<table>
<thead>
<tr>
<th>Size</th>
<th>Blue</th>
<th>Green</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>3cc</td>
<td>7012190</td>
<td>7014470</td>
<td>50</td>
</tr>
<tr>
<td>5cc</td>
<td>7012192</td>
<td>7014471</td>
<td>40</td>
</tr>
<tr>
<td>10cc</td>
<td>7012194</td>
<td>7014472</td>
<td>30</td>
</tr>
<tr>
<td>30, 55cc</td>
<td>7012196</td>
<td>7014473</td>
<td>20</td>
</tr>
</tbody>
</table>

Snap-on tip cap seals syringe barrel.

One size 7012198 Blue (50)

One size 7014469 Green (50)

**Adapter Assemblies**

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

### ADAPTER ASSEMBLIES

<table>
<thead>
<tr>
<th>Size</th>
<th>Blue 0.9 m (3 ft) Hose</th>
<th>Blue 1.8 m (6 ft) Hose</th>
<th>Blue 0.9 m (3 ft) Hose w/ filter trap</th>
</tr>
</thead>
<tbody>
<tr>
<td>3cc</td>
<td>7012341</td>
<td>7012059</td>
<td>7012063</td>
</tr>
<tr>
<td>5cc</td>
<td>7012054</td>
<td>7012058</td>
<td>7012062</td>
</tr>
<tr>
<td>10cc</td>
<td>7012339</td>
<td>7012057</td>
<td>7012061</td>
</tr>
<tr>
<td>30, 55cc</td>
<td>7012338</td>
<td>7012056</td>
<td>7012060</td>
</tr>
</tbody>
</table>

Blue molded one-piece, acetal adapter head with NBR O-ring, flexible polyurethane air hose (5/32” OD X 3/32” ID), male quick-connect and safety clip. For general use.
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.

---

**PRECISION STAINLESS STEEL TIPS**

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Color</th>
<th>ID</th>
<th>OD</th>
<th>6.35 mm (0.25&quot;)</th>
<th>12.7 mm (0.50&quot;)</th>
<th>25.4 mm (1.0&quot;)</th>
<th>38.1 mm (1.5&quot;)</th>
<th>45° Bend</th>
<th>90° Bend</th>
<th>45° Bend</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>mm</td>
<td>inch</td>
<td>mm</td>
<td>inch</td>
<td>mm</td>
<td>inch</td>
<td>mm</td>
<td>inch</td>
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<td>7018032</td>
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<td>0.065</td>
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<td>7018068</td>
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<td>0.033</td>
<td>1.27</td>
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<td>0.024</td>
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<td>7018178</td>
<td>7018166</td>
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<td>0.82</td>
<td>0.032</td>
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<td>7018305</td>
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<td>Clear</td>
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<td>0.008</td>
<td>0.42</td>
<td>0.016</td>
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<td>7005008</td>
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<td>7018433</td>
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<td>0.004</td>
<td>0.24</td>
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<td>n/a</td>
<td>n/a</td>
<td>7018462</td>
</tr>
</tbody>
</table>

Burr-free, polished, 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.
## SMOOTHFLOW TAPERED TIPS

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Color</th>
<th>ID</th>
<th>Standard</th>
<th>Opaque</th>
<th>Rigid</th>
<th>Qty/Box</th>
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<td>0.033</td>
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<td>7018147</td>
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<td>20</td>
<td>Pink</td>
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<td>22</td>
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<td>7018417</td>
<td>n/a</td>
<td>50</td>
</tr>
</tbody>
</table>

Use with gel cyanoacrylates, UV-cure adhesives, sealants, and particle-filled materials or any medium- to high-viscosity fluid. Molded of polyethylene with UV-light block additive.

## FLEXIBLE TIPS

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Color</th>
<th>ID</th>
<th>12.7 mm (0.50&quot;)</th>
<th>38.1 mm (1.5&quot;)</th>
<th>Qty/Box</th>
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</thead>
<tbody>
<tr>
<td>15</td>
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<td>Green</td>
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<td>0.024</td>
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<td>7018201</td>
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<tr>
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<td>0.010</td>
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<td>7018362</td>
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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>
<tr>
<th>Gauge</th>
<th>Color</th>
<th>ID</th>
<th>OD</th>
<th>12.7 mm (0.50&quot;)</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Purple</td>
<td>0.51</td>
<td>0.020</td>
<td>0.84 0.033</td>
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</tr>
<tr>
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<td>0.74 0.029</td>
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<td>Orange</td>
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<td>0.013</td>
<td>0.66 0.026</td>
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<tr>
<td>25</td>
<td>Red</td>
<td>0.25</td>
<td>0.010</td>
<td>0.53 0.021</td>
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</table>

Controls wicking to stop drips in optical media applications.

## PTFE-LINED TIPS

<table>
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<th>ID</th>
<th>OD</th>
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</thead>
<tbody>
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<td>0.020</td>
</tr>
<tr>
<td>Pink</td>
<td>0.30</td>
<td>0.012</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>
<th>38.1 mm (1.5&quot;)</th>
<th>12.7 mm (0.50&quot;)</th>
<th>6.35 mm (0.25&quot;)</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Green</td>
<td>0.84</td>
<td>0.033</td>
<td>n/a</td>
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<td>n/a</td>
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<td>Pink</td>
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<td>0.024</td>
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<td>0.016</td>
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<td>Orange</td>
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<td>0.013</td>
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<tr>
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<td>Clear</td>
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<td>0.008</td>
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<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>33</td>
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<td>0.004</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
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</table>

Use for microdot application of low viscosity fluids.

## BRUSH TIPS

<table>
<thead>
<tr>
<th>Style</th>
<th>50.8 mm (2&quot;) length</th>
<th>Qty/Box</th>
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</thead>
<tbody>
<tr>
<td>Soft</td>
<td>7022730</td>
<td>50</td>
</tr>
<tr>
<td>Stiff</td>
<td>7022731</td>
<td>50</td>
</tr>
</tbody>
</table>

Spread glues and greases. Nylon bristles.

## OVAL TIPS

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Color</th>
<th>12.7 mm (0.50&quot;)</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Amber</td>
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</tr>
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<td>18</td>
<td>Green</td>
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<tr>
<td>23</td>
<td>Orange</td>
<td>7024656</td>
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</table>

Flat ribbon deposits of thick pastes, sealants & epoxies.

## TIP SHIELDS

<table>
<thead>
<tr>
<th>Size</th>
<th>Color</th>
<th>Part #</th>
<th>Qty/Box</th>
</tr>
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<tbody>
<tr>
<td>5cc to 55cc</td>
<td>Black</td>
<td>7017717</td>
<td>10</td>
</tr>
</tbody>
</table>

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

## POLYETHYLENE NOZZLES

<table>
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<th>length</th>
<th>Part #</th>
<th>Qty/Bag</th>
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<tr>
<td>0.157</td>
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<td>10</td>
</tr>
<tr>
<td>0.157</td>
<td>0.062</td>
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<td>10</td>
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<tr>
<td>0.08</td>
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</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>
<th>Qty/Bag</th>
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<tbody>
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<td>8</td>
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<td>7014848</td>
<td>1</td>
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<td>12</td>
<td>2.2</td>
<td>7014842</td>
<td>1</td>
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<td>1.6</td>
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</tr>
<tr>
<td>16</td>
<td>1.2</td>
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</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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</thead>
<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>
</tr>
<tr>
<td>Microdot Deposits</td>
<td>X</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Fluid is Reactive to Metal</td>
<td>●</td>
<td>X</td>
<td>●</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>
<td>●</td>
<td>●</td>
<td>●</td>
<td>▲</td>
</tr>
<tr>
<td>Easily Scratched Substrates</td>
<td>●</td>
<td>▲</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

### Fluids

- **Adhesives**: ● ● ● ●
- **Anaerobics**: ● ▲ ● ●
- **Conformal Coatings**: ● ▲ ● ▲
- **Cyanoacrylates**: ● ▲ ● ●
- **Gel Cyanoacrylates**: ● ▲ ● ●
- **Epoxies**: ● ● ● X
- **Greases**: ● ● ● X
- **Light-Cure Adhesives**: X ▲* ▲* X
- **Oils**: ▲ ● ● ▲
- **Paints**: ▲ ● ● X
- **Sealants**: ● ▲ ▲ X
- **Silver Epoxy**: X ▲* ▲ X
- **Solder Paste/Braze Pastes**: ● ● ▲ X
- **Solder Masks**: ● ● ▲ X
- **Solvents**: X ● ● ●
- **UV-Cure Adhesives**: ● ▲* ▲* ▲

*OK if used with tip shield, part #7017715 or 7017717.

*Chamfered 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

### CARTRIDGES

#### Clear Cartridges

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
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<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>
<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>
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<tr>
<td>7012410</td>
<td>12 fl oz (360 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012417</td>
<td>20 fl oz (600 ml)</td>
<td>100</td>
</tr>
<tr>
<td>7014092</td>
<td>32 fl oz (960 ml)</td>
<td>100</td>
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</table>

#### Amber Cartridges

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012390</td>
<td>2.5 fl oz (75 ml)</td>
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</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>
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<td>7014089</td>
<td>32 fl oz (960 ml)</td>
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</tr>
<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>
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<td>7012411</td>
<td>12 fl oz (360 ml)</td>
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<td>7012737</td>
<td>20 fl oz (600 ml)</td>
<td>100</td>
</tr>
<tr>
<td>7014093</td>
<td>32 fl oz (960 ml)</td>
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</tbody>
</table>

#### Black Cartridges

<table>
<thead>
<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>
<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>
<td>12 fl oz (360 ml)</td>
<td>250</td>
</tr>
<tr>
<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>
<td>100</td>
</tr>
</tbody>
</table>

#### Green Cartridges

<table>
<thead>
<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>
<td>25</td>
</tr>
<tr>
<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>
</tr>
<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>
<td>10</td>
</tr>
<tr>
<td>7014168</td>
<td>2.5 fl oz (75 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7014171</td>
<td>6 fl oz (180 ml)</td>
<td>250</td>
</tr>
<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>
</tr>
</tbody>
</table>

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### CARTRIDGE DIMENSIONS

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

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

### Retainer Systems

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012430</td>
<td>2.5 fl oz (75 ml)</td>
</tr>
<tr>
<td>7012433</td>
<td>6 fl oz (180 ml)</td>
</tr>
<tr>
<td>7012436</td>
<td>12 fl oz (360 ml)</td>
</tr>
<tr>
<td>7012439</td>
<td>20 fl oz (600 ml)</td>
</tr>
<tr>
<td>7013899</td>
<td>32 fl oz (960 ml)</td>
</tr>
</tbody>
</table>

### Retainer Systems with 0-15 psi (0-1 bar) Regulator

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012431</td>
<td>2.5 fl oz (75 ml)</td>
</tr>
<tr>
<td>7012434</td>
<td>6 fl oz (180 ml)</td>
</tr>
<tr>
<td>7012437</td>
<td>12 fl oz (360 ml)</td>
</tr>
<tr>
<td>7013899</td>
<td>20 fl oz (600 ml)</td>
</tr>
</tbody>
</table>

### Retainer Systems with 0-100 psi (0-7 bar) Regulator

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012432</td>
<td>2.5 fl oz (75 ml)</td>
</tr>
<tr>
<td>7012435</td>
<td>6 fl oz (180 ml)</td>
</tr>
<tr>
<td>7012438</td>
<td>12 fl oz (360 ml)</td>
</tr>
<tr>
<td>7012440</td>
<td>20 fl oz (600 ml)</td>
</tr>
<tr>
<td>7014100</td>
<td>32 fl oz (960 ml)</td>
</tr>
</tbody>
</table>

### Retainer Bodies

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>7013857</td>
<td>2.5 fl oz (75 ml)</td>
</tr>
<tr>
<td>7013858</td>
<td>6 fl oz (180 ml)</td>
</tr>
<tr>
<td>7013859</td>
<td>12 fl oz (360 ml)</td>
</tr>
<tr>
<td>7013860</td>
<td>20 fl oz (600 ml)</td>
</tr>
<tr>
<td>7013900</td>
<td>32 fl oz (960 ml)</td>
</tr>
</tbody>
</table>

### Retainer Cap Assemblies

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012531</td>
<td>2.5, 6, 12 fl oz (75, 180, 360 ml)</td>
</tr>
<tr>
<td>7012532</td>
<td>20, 32 fl oz (600, 960 ml)</td>
</tr>
</tbody>
</table>

### Retainer Cap O-ring Kits (2/pkg.)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Material</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>7014373</td>
<td>Buna</td>
<td>2.5, 6, 12 fl oz (75, 180, 360 ml)</td>
</tr>
<tr>
<td>7026914</td>
<td>EPR</td>
<td>2.5, 6, 12 fl oz (75, 180, 360 ml)</td>
</tr>
<tr>
<td>7026915</td>
<td>Viton</td>
<td>2.5, 6, 12 fl oz (75, 180, 360 ml)</td>
</tr>
<tr>
<td>7014372</td>
<td>Buna</td>
<td>20, 32 fl oz (600, 960 ml)</td>
</tr>
<tr>
<td>7026916</td>
<td>EPR</td>
<td>20, 32 fl oz (600, 960 ml)</td>
</tr>
<tr>
<td>7026917</td>
<td>Viton</td>
<td>20, 32 fl oz (600, 960 ml)</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.

<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>

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012420</td>
<td>2.5, 6, 12 fl oz (75, 180, 360 ml)</td>
<td>250</td>
</tr>
<tr>
<td>7012422</td>
<td>20, 32 fl oz (600, 960 ml)</td>
<td>100</td>
</tr>
</tbody>
</table>

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.

<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>

<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>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Color</th>
<th>Qty/Box</th>
</tr>
</thead>
<tbody>
<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 SYSTEMS

## 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 Female luer lock to barrel elbow</td>
</tr>
<tr>
<td></td>
<td>7022415</td>
<td>Stainless Steel</td>
<td>Barrel loader fitting 1/4 NPT male Female luer lock</td>
</tr>
<tr>
<td></td>
<td>7017020</td>
<td>Black Polypropylene</td>
<td>1/4 NPT x 3/8 compression</td>
</tr>
<tr>
<td></td>
<td>7017014</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, 7250A 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

For use with:
Activators
Anaerobics
Cyanoacrylates
Fluxes
Solvents
UV-cure & Light-cure Adhesives

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:
(1) 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

The ValveMate™ 8000 controller puts adjustment of the 752V Series valve open time where it is most needed, at the valve. See page 52.

7021428
(752V-UHSS Valve)
Air cylinder body assembly is passivated 303 stainless steel. UHMW* fluid body and diaphragm. Includes fluid inlet fittings #7021499 and #7007038.

7021419
(752V-SS Valve)
Air cylinder body assembly is passivated 303 stainless steel. Acetal copolymer fluid body and UHMW* diaphragm. Includes fluid inlet fittings #7021499 and #7007038.

7021411
(752V-DVD Valve)
Air cylinder body assembly is hard-coat anodized aluminum. Tamper-resist stroke adjustment. UHMW* diaphragm and 303 stainless steel fluid body with integral tip adapter. Includes inlet fitting #7021499.

7021427
(752V-UHVDVD Valve)
Same as 752V-DVD except fluid body is UHMW* with #7021443 tip adapter. Includes inlet fitting #7021499.

7021285
(750V-SS Valve)
Air cylinder body assembly is 303 stainless steel. UHMW* fluid body and diaphragm. Includes fluid inlet fitting #7021300.

7015582
(752V-SS-BP Valve)
Air cylinder body assembly is 303 stainless steel. Acetal copolymer fluid body and UHMW diaphragm. Includes fluid fittings and BackPack valve actuator #7015581.

7015583
(752V-UHSS-BP Valve)
Air cylinder body assembly is 303 stainless steel. UHMW fluid body and diaphragm. Includes fluid fittings and BackPack valve actuator #7015581.

*UHMW—Ultra High Molecular Weight polyethylene

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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 and other low-to-medium viscosity fluids.

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

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

For use with:
- UV-cure Adhesives
- UV-cure Coatings
- UV-cure Lacquers
- UV-cure Solvents
- Resins
- 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 23 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.

The ValveMate 8000 controller makes the 702 Series Valve setup fast and easy. See page 52.
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

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

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.

*Ultra High Molecular Weight polyethylene
Aseptic Valve
754V

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

For use with:
Saline Solutions
Optical Monomers
Pill Coating
Solvents
Vial Filling
Food Processing

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
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

For use with:

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

Specifications

<table>
<thead>
<tr>
<th>725DA-SS (stroke adjustment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: 152.4 mm length x 29.5 mm diameter (6.00&quot; x 1.16&quot;)</td>
</tr>
<tr>
<td>Weight: 326 g (11.5 oz)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>725D-SS (fixed stroke-travel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: 127 mm length x 28.4 mm diameter (5.00&quot; x 1.12&quot;)</td>
</tr>
<tr>
<td>Weight: 279 g (9.85 oz)</td>
</tr>
</tbody>
</table>

Actuating air pressure required:

- 70-90 psi (4.8-6.2 bar)

Maximum input fluid pressure: 100 psi (7.0 bar)

Fluid inlet thread: 1/8 NPT female

Fluid outlet: 1/4 NPT female

Mounting: (1) 1/8 NPT female blind hole or adjustable mounting block

Air cylinder body: Aluminum, hard-coat anodized

Fluid body: 303 stainless steel

Piston: Aluminum, hard-coat anodized

Spring: Stainless steel

Sealing head/diaphragm: UHMW* polymer, FDA-approved

All stainless steel parts are passivated.

*Ultra High Molecular Weight polyethylene
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
Size: 109.2 mm length x 31.2 mm diameter (4.30” x 1.23”)
Weight: 185 g (6.5 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

All stainless steel parts are passivated.

*Ultra High Molecular Weight polyethylene
**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**

- Unaffected by entrapped air in fluid
- 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

**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.

**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.
**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
- **Air cylinder body:** Aluminum, hard-coat anodized
- **Fluid body:** 303 stainless steel
- **Piston:** 303 stainless steel
- **Needle:** 303 stainless steel
- **Tip adapter:** 303 stainless steel

**7021233 (741MD-SS Valve)**

Fluid body is passivated 303 stainless steel. Air cylinder body assembly is hard-coat anodized aluminum. Includes fluid inlet fittings #7021499 and #7007038.

**7015585 (741MD-SS-BP Valve)**

Fluid body is passivated 303 stainless steel. Air cylinder body assembly is hard-coat anodized aluminum. Includes fluid inlet fittings and Backpack valve actuator #7015581.

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

**Valves**

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

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, spool seals, fluid body, body cap

All stainless steel parts are passivated.

For use with:
- Adhesives
- Greases
- Sealants
- Silicones

The ValveMate 8000 controller and 736HPA-NV valve provide controlled beads or repeatable dots and fills. Refer to page 52.

7013449
736HPA-NV Valve (Chromium-plated spool)
Fluid body and air cylinder body are passivated 303 stainless steel with a chromium-plated spool. The fluid inlet and outlet threads are 1/4 NPT female.

7028951
736HPA-NV Valve (Titanium nitride-coated spool)
Fluid body and air cylinder body are passivated 303 stainless steel with a titanium nitride-coated spool. The fluid inlet and outlet threads are 1/4 NPT female.

High pressure fluid inlet fittings are not supplied by EFD. They are available from the pump supplier. Specify inlet size 1/4 NPT.

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

Specifications
Size: 237.5 mm length x 31.8 mm diameter
(9.35" x 1.25")
Weight: 544 g (19.2 oz)
Fluid chamber: 440C hardened stainless steel
Auger: 440C hardened stainless steel
"U" cup: Filled PTFE, spring energized
Liquid feed fitting: 304 stainless steel 10-32 UNF x 5/32
(push-in optional: polypropylene)
Auger speed: 250-500 RPM based on voltage input
Auger pitch: 8 and 16 pitch auger
Input voltage: 12-24 VDC (<10% ripple)
Input air: 0-30 psi (0-2.07 bar) clean, dry and filtered
Maximum acceleration: 2 g

All stainless steel parts are passivated.
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
- Lubricants
- Silicone Gels
- Solvents

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

The ValveMate 7060RA controller provides exact control to the radial spinner system. Refer to page 56.

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.

7014235 (7060RA Radial System Controller)
Accessories included with each ValveMate 7060RA 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 (.354”) radial spinner/disc</td>
</tr>
<tr>
<td>7021836</td>
<td>7880-12MM: 12 mm (.473”) radial spinner/disc</td>
</tr>
<tr>
<td>7021838</td>
<td>7880-15MM: 15 mm (.590”) radial spinner/disc</td>
</tr>
<tr>
<td>7021840</td>
<td>7880-19MM: 19 mm (.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 16, 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>
Spray Valve Systems

EFD’s Low Volume Low Pressure (LVLP) spray systems apply consistent coatings of low- to medium-viscosity fluids, including lubricants, medical solutions, activators, oils and inks.

A wide variety of models offers industry solutions that range from micro spraying medical stent coatings to coating automotive cylinders to spray marking parts. The combination of adjustable fluid flow, adjustable nozzle air and post-air cutoff provides excellent spray control.

The system includes a compact spray valve, ValveMate controller and fluid tank. The controller is used to set length of time and air pressure required for precise coverage. A programmable nozzle air delay after each spray cycle keeps the spray nozzle clog-free and reduces maintenance and downtime.

Features and Benefits
- Extremely consistent coverage
- High transfer efficiency
- Cycle rate exceeds 400/minute
- No overspray or mist
Spray Valve Systems
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
- Silicones
- Coatings
- Solvents
- Greases
- Inks
- Liquid Fluxes
- Solvents
- Oils

ValveMate 8040 controller provides Low Volume Low Pressure air to the nozzle of the 781S Series valve for high transfer efficiency. Refer to page 53.

7007031
(781S-SS Spray Valve) Nozzle size is 1.17 mm (.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 (.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 (.014") diameter. Round pattern, narrow angle. All metal parts are passivated 303 stainless steel.

7021612
(781S-SS-14F) Nozzle size is 0.36 mm (.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

For use with:
Activators
Coatings
Inks
Liquid Fluxes
Oils
Silicones
Solvents

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 (.004"; 0.10 mm) to 23 ga (.013"; 0.33 mm)
Needle packings: PTFE
Maximum operating temperature: 102°C (215°F)

All stainless steel parts are passivated.
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

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

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 (.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 (.028") diameter nozzle. Round pattern, narrow angle. All metal parts are passivated 303 stainless steel.

For fluids not requiring recirculation, select MicroMark System MM781-SYS. See below.

7023895
Includes spray valve, ValveMate 8040 controller, solenoid valve kit and 1-liter tank reservoir.

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

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.
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

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

All stainless steel parts are passivated.

US Patent No. D376,376 for 782RA Radial Spray Valve
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, 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

Specifications

- Cabinet size: 18.3w x 5.1h x 8.6d cm (7.22"w x 2"h x 3.38"d)
- Weight: .27 kg (.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 100mA maximum
- Initiate circuit: 5 to 24 VDC signal
- Cycle rate: Exceeds 600 per minute
- Time range: Programmable .001 to 99.9 seconds
- Approvals: CE, CSA, RoHS, WEEE & China RoHS Compliant

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.

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.
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: 27 kg (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  
100mA maximum
Initiate circuit:  
5 to 24 VDC signal
Cycle rate:  
Exceeds 400 per minute
Time range:  
Programmable .001 to 99.9 seconds
Approvals:  
CE, CSA, RoHS, WEEE & China RoHS Compliant
Specifications
Cabinet size: 14.0W x 6.8H x 14.2D 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 100mA maximum
Initiate circuit: 5 to 24 VDC signal
Cycle rate: Exceeds 600 per minute
Time range: Programmable .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.

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, 741 and 750 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

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

Specifications

- Cabinet size: 20.0W x 6.8H x 14.2D cm (7.9”W x 2.7”H x 5.6”D)
- 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 100mA maximum
- Initiate circuit: 5 to 24 VDC signal
- Cycle rate: Exceeds 400 per minute
- Time range:
  - Programmable .001 to 99.9 seconds
- Approvals:
  - CE, CSA, RoHS, WEEE & China RoHS Compliant
Radial System
ValveMate™ 7060RA

The ValveMate 7060RA 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 7060RA also includes a programmable shutoff delay and a test cycle button to initiate spray cycles during setup.

Features and Benefits
• Digital time and pressure display
• Panel or bracket mounting
• Motor overload/fault detection
• Programmable time

Specifications
Cabinet size: 19.1W x 6.9H x 14.2D cm
(7.5"W x 2.7"H x 5.6"D)
Weight: 1.5 kg (3.3 lb)
Input AC (to power supply): 100/120/220 VAC, 50/60 Hz
Output voltage (from power supply): 24 VDC, 1.25 Amp maximum
Initiate circuit: 5 to 24 VDC signal
Time range: Programmable 0.001 to 99.9 seconds
Approvals: CE, CSA, RoHS, WEEE & China RoHS Compliant

7014235
(7060RA Radial Spray Valve Controller)
Accessories included with each ValveMate 7060RA controller: Input air hose and fittings, five-micron filter regulator with air lubricator, universal mounting bracket and power cord.
Auger Valve Controller
ValveMate™ 7094 Series

Designed for use with the 794 Series auger valves, the ValveMate 7094 Series controllers provide a fast, convenient way to adjust valve open time in increments as small as 0.001 second. This provides exceptional process control and eliminates the need to reprogram a PLC.

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 one ValveMate 7094DC controller (for brush style motors) or ValveMate 7094BL controller (for brushless style motors) for proper operation.

Features and Benefits
• Motor voltage range of 10-24VDC
• Continuous or pulse pressure mode to reservoir
• Nonvolatile, power-off memory
• Programmable time

Specifications
- Cabinet size: 19.1W x 6.9H x 14.2D cm (7.5"W x 2.7"H x 5.6"D)
- Weight: 1.6 kg (3.4 lb)
- Input AC (to power supply): 100-240 VAC, 50/60 Hz
- Output voltage (from power supply): 30 VDC, 1.25 Amp maximum
- Initiate circuit: 5 to 24 VDC signal
- Time range: Programmable 0.001 to 99.9 seconds, 0.00005 second repeat
- Approvals: CE, CSA, RoHS, WEEE & China RoHS Compliant

7013863
(7094DC Controller, Brush Motor)
Includes controller, input air hose and fittings, five-micron filter regulator with air lubricator and power cord.

7013864
(7094BL Controller, Brushless Motor)
Includes controller, input air hose and fittings, five-micron filter regulator with air lubricator and power cord.
7094BL Brushless Motor Auger Valve Controller use with Auger Valve Series 794-SB, 794-SB-16, 794-FB, 794-FB-16, 794-FB-16DL
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-Liter**
- Tank body: Cast aluminum
- Capacity: 1 liter
- Maximum operating pressure: 100 psi (0.69 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-Liter**
- Tank body: Cast aluminum
- Capacity: 5 liter
- Maximum operating pressure: 100 psi (0.69 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.
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>3.6 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>
<tr>
<td>Model</td>
<td>615DTL</td>
<td>626DTL</td>
</tr>
<tr>
<td>Regulator &amp; gauge</td>
<td>15 psi (1.0 bar)</td>
<td>15 psi (1.0 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 (626DTH-FS)
5.0 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).

7020190 (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).
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).

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**CARTRIDGE ASSEMBLIES AND PARTS**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7012431</td>
<td>2.5 fl oz (75 ml)</td>
<td>Cartridge assembly with 15 psi (1.0 bar) regulator</td>
</tr>
<tr>
<td>7012432</td>
<td>2.5 fl oz (75 ml)</td>
<td>Cartridge assembly with 100 psi (7.0 bar) regulator</td>
</tr>
<tr>
<td>7012434</td>
<td>6 fl oz (180 ml)</td>
<td>Cartridge assembly with 15 psi (1.0 bar) regulator</td>
</tr>
<tr>
<td>7012435</td>
<td>6 fl oz (180 ml)</td>
<td>Cartridge assembly with 100 psi (7.0 bar) regulator</td>
</tr>
<tr>
<td>7012437</td>
<td>12 fl oz (360 ml)</td>
<td>Cartridge assembly with 15 psi (1.0 bar) regulator</td>
</tr>
<tr>
<td>7012438</td>
<td>12 fl oz (360 ml)</td>
<td>Cartridge assembly with 100 psi (7.0 bar) regulator</td>
</tr>
<tr>
<td>7013889</td>
<td>20 fl oz (600 ml)</td>
<td>Cartridge assembly with 15 psi (1.0 bar) regulator</td>
</tr>
<tr>
<td>7012440</td>
<td>20 fl oz (600 ml)</td>
<td>Cartridge assembly with 100 psi (7.0 bar) regulator</td>
</tr>
<tr>
<td>7014100</td>
<td>32 fl oz (960 ml)</td>
<td>Cartridge assembly with 100 psi (7.0 bar) regulator</td>
</tr>
<tr>
<td>7018646</td>
<td>1/10 gal (300 ml)</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

**Output dependent on material viscosity, temperature, filters and system configuration.

** Add 152.4 mm (6") to height dimension for units with optional casters.
<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</td>
<td>Series</td>
<td>Valve stand</td>
</tr>
<tr>
<td>7021056</td>
<td>781</td>
<td>Series</td>
<td>Valve stand</td>
</tr>
<tr>
<td>7021059</td>
<td>725D</td>
<td>Series</td>
<td>Valve stand</td>
</tr>
<tr>
<td>7021070</td>
<td>750</td>
<td>Series</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</td>
<td>Series</td>
<td>Designed for specific valves</td>
</tr>
<tr>
<td>7021079</td>
<td>725D</td>
<td>Series</td>
<td></td>
</tr>
<tr>
<td>7021136</td>
<td>736HPA</td>
<td>NV/725HF Series</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></td>
<td></td>
<td></td>
<td>Traps moisture and particles over five microns.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100 psi (7.0 bar) regulator and gauge.</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></td>
<td></td>
<td></td>
<td>Traps moisture and particles over five microns.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100 psi (7.0 bar) regulator and gauge.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recommended for systems dispensing cyanoacrylates.</td>
</tr>
<tr>
<td>7028717</td>
<td></td>
<td>All valves except 702V, 750V/751V horizontal mount versions and 794 Series Valves</td>
<td>Pneumatic dispense gun 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 794 Series Valves</td>
<td>Electric dispense gun 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></td>
<td>750 Series (stainless steel)</td>
<td>Stroke control knob provides 25 graduations per turn for exact stroke reference.</td>
</tr>
<tr>
<td>7007034</td>
<td></td>
<td>782RA (aluminum)</td>
<td>Caliberation ring on the stroke control knob provides 25 graduations per turn for exact stroke reference.</td>
</tr>
<tr>
<td>7021621</td>
<td>741/781</td>
<td>Series (aluminum)</td>
<td></td>
</tr>
<tr>
<td>7021622</td>
<td>741/781</td>
<td>Series (stainless steel)</td>
<td></td>
</tr>
<tr>
<td>7021266</td>
<td>741/781</td>
<td>Series</td>
<td>Tamper-resistant upgrade kit</td>
</tr>
<tr>
<td>7021503</td>
<td>750</td>
<td>Series</td>
<td></td>
</tr>
<tr>
<td>7021500</td>
<td>782RA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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”) OD tubing</td>
</tr>
<tr>
<td></td>
<td>7021524</td>
<td>Liquid manifold, 3 outlets, 6.4 mm (1/4”) OD tubing</td>
</tr>
<tr>
<td></td>
<td>7021525</td>
<td>Liquid manifold, 4 outlets, 9.5 mm (3/8”) OD tubing</td>
</tr>
<tr>
<td></td>
<td>7021526</td>
<td>Liquid manifold, 4 outlets, 6.4 mm (1/4”) 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”) ID tube</td>
</tr>
<tr>
<td></td>
<td>7021537</td>
<td>Black nylon Y barb fitting for 3.2 mm (1/8”) ID tube</td>
</tr>
<tr>
<td></td>
<td>7021541</td>
<td>Polypropylene Y barb fitting for 6.4 mm (1/4”) ID tube</td>
</tr>
<tr>
<td></td>
<td>7021545</td>
<td>Black plastic push-in fitting for 4.0 mm (5/32”) OD tube</td>
</tr>
<tr>
<td>Fitting</td>
<td>Part #</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>7016864</td>
<td>1/4 hose to barrel adapter, polypropylene</td>
<td>White</td>
</tr>
<tr>
<td>7020133</td>
<td>1/4 pass-thru bulkhead, nylon</td>
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<td>7014708</td>
<td>1/4 NPT X 1/4 NPT stainless steel street elbow</td>
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<td>7012255</td>
<td>M5 X 4 mm push-in elbow fitting</td>
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<td>7016865</td>
<td>Barrel adapter 3/32 barb, polypropylene</td>
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<td>Fitting, fluid: 1/8 barb - 754V</td>
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<td>7021491</td>
<td>Fitting, fluid: 4 mm barb - 754V</td>
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<td>7021299</td>
<td>Fitting: 1/4-28 to 1/8 barb, stainless steel</td>
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<td>7021309</td>
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<td>7020669</td>
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## VALVE TIP ADAPTERS

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## VALVE AND CONTROLLER FEATURES

### VALVES

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*Ultra High Molecular Weight polyethylene  **741V-SS model only

### Controller Features

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<th>8000</th>
<th>8040</th>
<th>7060RA</th>
<th>7094BL</th>
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<tr>
<td>Application</td>
<td>General Purpose Valve Control</td>
<td>Spray Valve Control</td>
<td>Radial Spinner/Spray Valve Control</td>
<td>Auger Valve Control</td>
<td>Auger Valve Control</td>
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<tr>
<td>Use with valve series</td>
<td>702, 725, 736, 741, 752, 754</td>
<td>781S, 787MS-SS</td>
<td>782RA, 7860C-RS Spinner</td>
<td>794 Brushless Motor*</td>
<td>794 Brush Motor**</td>
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<td>Independent multi-valve control</td>
<td>4-channel control</td>
<td>2-channel control</td>
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<td>183.6 mm x 51.6 mm (7.23” x 2.03”)</td>
<td>187 mm x 66 mm (7.35” x 2.58”)</td>
<td>187 mm x 66 mm (7.35” x 2.58”)</td>
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* For 7094BL controller, use only with brushless motor version auger valves, 794-SB & 794-SB-16, 794-FB & 794-FB-16 & and 794-SB-16-DL
** For 7094DC controller, use only with brush motor version auger valves, 794-SR & 794-SR-16, 794-FR & 794-FR-16, and 794-SR-16-DL
<table>
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<th>Microdots*</th>
<th>Dots</th>
<th>Potting</th>
<th>Encapsulating</th>
<th>Lines/ Stripes</th>
<th>Filling/ Packaging</th>
<th>Micro Spray</th>
<th>316 L Aseptic Microspray</th>
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<td>787MS-SS</td>
<td>784S-SS</td>
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*Note: For microdot applications requiring general purpose tip sizes between 27 and 33 gauge, specify valve model 741MD-SS in place of 741V-SS.
## VALVE APPLICATIONS

### APPLICATION DEFINITIONS

<table>
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<tr>
<th>Fluids</th>
<th>Microdots*</th>
<th>Dots</th>
<th>Potting</th>
<th>Encapsulating</th>
<th>Lines/Stripes</th>
<th>Filling/ Packaging</th>
<th>Micro</th>
<th>316 L Aseptic</th>
<th>Spray</th>
<th>Internal Spray</th>
<th>Internal Band</th>
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<tr>
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*Note: For microdot applications requiring general purpose tip sizes between 27 and 33 gauge, specify valve model 741MD-SS in place of 741V-SS.*

**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.

### 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 (212°F).
## VALVES AND RESERVOIRS

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<tr>
<th>Fluids</th>
<th>725DA-SS</th>
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*Note: Ratio Pump indicates a pump is required.*
NOTES

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.

**model 615**
- Inside diameter: 9.7 cm (3.82")
- Inside depth: 17.4 cm (6.87")
- Liner volume: 0.95 liter

**model 626**
- Inside diameter: 17.3 cm (6.81")
- Inside depth: 24.8 cm (9.75")
- Liner volume: 3.8 liter

The 615 and 626 series tanks can be supplied with a stainless steel float switch (add “-FS” after tank part #). Tanks with a float switch are not recommended for use with adhesives or fluids that may restrict float travel.

**For low 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.

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.
PICO™ Dispensing Systems

PICO dispensing systems use piezoelectric technology to deliver high production speeds with exceptional deposit accuracy and superior process control.

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.

Needle valve systems produce extremely small dots and well defined lines with precise control of beginning and end points.

Slider valve systems provide fast, precise application of solder paste and other particle-filled materials.

Applications include:

**Electronics**
- Oils, greases and adhesives for production of electronic components
- UV adhesives on mobile phone speaker membranes to attach voice coils
- Fluxes and conformal coatings

**Display**
- Edge seal with UV adhesives
- COG (Chip On glass) and TAB Seal

**Micro-mechanical**
- Adhesives used in watch production
- Oils and greases on measuring instruments and watch movements

**Automotive**
- Marking and color coding inks
- Grease dot-on-dot buildup between cogs of gears

**Mobile Devices**
- UV-cure adhesives for bonding applications (camera modules, keypads, microspeakers, touchpads and displays)
- Hydrophobic fluids for protective treatment applications

**Medical Devices/Cosmetics**
- Solvents and adhesives on syringes, filters, tubes and other consumables
- UV adhesives

**Marking Fluids**
- Inks and paints

**Mechanical**
- Oils and greases
- Solvents and primers

**Photovoltaics**
- Flux: stringing and tabbing, PV bus bars and ribbons
- Silver epoxy: stringing and tabbing, bus bars, ribbons between contacts
System Overview – PICO Valves

EFD’s PICO piezoelectric jet dispensing systems have four components: (1) a PICO valve, (2) a DCON valve driver, (3) a PICO controller and (4) a fluid reservoir. All components are engineered to work together as a complete, integrated system that produces exceptionally fast, accurate deposits of a wide range of fluids.

Features and Benefits

- Continuous operation up to 500 cycles/second (Hz) permanent
- Consistent shots as small as 0.5 nanoliters
- Ideal for hard-to-access or uneven substrates
- Non-contact jetting systems eliminate Z-axis movement for significantly faster production speeds
- Configurable for high-speed needle dispensing
- Compatible with a wide range of fluids
- Slider valve systems available for solder pastes and other filled material (slider valve cycle rate only 10Hz permanent)

Jet Valves (for Non-contact Dispensing)

PICO jet valves incorporate two piezoelectric actuators composed of stacked ceramic coins that expand and contract in response to changes in voltage supplied from the valve driver. Both actuators are connected to a vertical rod with a wear-resistant ceramic sealing ball at its lower end. When the valve is closed, the ball is seated in the valve nozzle plate.

When voltage is applied to the actuators, the rod and sealing ball are raised so that the pressurized fluid can flow to the nozzle. When the voltage is changed, the rod and sealing ball descend rapidly to “jet” the fluid out of the nozzle and onto the substrate.

The extremely fast action of the piezoelectric actuators makes it possible to dispense fluid continuously at speeds of up to 500 cycles per second. Depending on the fluid, the system can produce consistent shots as small as 0.5 nanoliters.

Contact Nordson EFD for free application review.
Needle Valves (for Contact Dispensing)

PICO needle dispensing systems provide exceptional deposit accuracy and process control for a wide range of fluids. Fast-acting piezoelectric actuators make it possible to apply extremely small dots and well-defined lines with precise control of the beginning and end points. An adapter attached to the nozzle plate allows the use of precision dispensing needles.

Slider Valves (for Solder Paste and Highly Filled Adhesives)

Slider valves are designed for needle dispensing of particle-filled fluids and incorporate two sliding ceramic plates, each with a small opening in its center. The fluid feed tube is attached to the upper plate, and the dispensing nozzle is attached to the lower plate. In the closed position, the ceramic plates are offset so that the openings are not aligned. When the piezoelectric actuators are energized, the upper plate slides over the lower plate until both openings are aligned so that fluid can flow to the needle.
System Overview – PICO
Driver DCONS and Controllers

Valve Driver DCONS

Piezoelectric dispense valves are powered by valve drivers that use an amplifier to generate the signal for the piezoelectric actuators. DCON drivers are available with or without temperature controllers. The temperature control version is designed for use with valves that incorporate a heater to keep the fluid at optimal jetting viscosity.

Valve driver DCON:
• Supply voltage to actuate the piezoelectric elements in the valve
• Control the temperature of the valve heater (select models)
• Keep the valve closed in case of power loss, for a maximum of 20 minutes

Features and Benefits
• Ability to operate up to 4 channels with one device (saves space in multi-valve installations)
• 35 x 63 mm digital display
• Real-time clock
• Available with Clock Generator feature for single line pulse time programming of valves
• Over 200 DCON Driver configurations are available for use with low viscosity, medium viscosity, high viscosity and slider valves

Specifications

Driver DCON

Enclosure
Cabinet size: 10.7 w x 12.9 h x 17.1 d cm
(4.2” w x 5.1” h x 6.7” d)
Weight: 1.8 kg (3.9 lb)
Material: Aluminum, black anodized
Degree of protection: IP30

Electrical Data
Voltage supply: 24 V DC ± 10 %
Power consumption:
Max. 24 W per channel plus heat output of the valve (MV 100/ 35 W; MV 200/ 50 W)
PICO Controllers

PICO valve controllers are used to set the fluid dispensing parameters for each valve. Graphical displays and user-friendly menus make it simple to create complex jetting processes on a PC, and then download them to the controller via an integrated SD card slot.

Features and Benefits

- High speed precision timer for programming pulse time and dispense sequences
- Pulse time starting at 50μs and can be adjusted in increments of 10μs
- 128 x 64 pixel graphic display
- 10 individual pattern sequences programmable via txt file and SD memory card (included)
- Continuous operation mode
- 25-pin sub-D PLC interface

Models

PICO Controller 2+2-2CH-V2-N  2 channels, upgradeable to 4 channels
PICO Controller 2+2-4CH-V2-N  4 channels

Optional housings provide convenient mounting for controllers and drivers

Specifications
Controller
Enclosure
Cabinet size: 14.2w x 12.9h x 17.1d cm (5.6"w x 5.1"h x 6.7"d)
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 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 under 7 bar (100 psi). For fluid pressures greater than 100 psi, 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 50 bar (725 psi).

PICO Dispensing Needles

Precision stainless steel needles for contact dispensing applications are available, with orifices ranging from 16 to 32 gauge. All tips have chamfered outlet ends, and some sizes are available with PTFE-coated tip shafts for use in specific applications.

Specialty sizes and tip configurations are also available. Please contact your local PICO representative for assistance.

Testing

To ensure that the PICO system is the appropriate solution for our customers’ applications, every fluid is tested in one of our global jetting labs, and the results supplied in a timely manner.
## Fluid Viscosities

### Average viscosity of different materials that can be applied with PICO valves

<table>
<thead>
<tr>
<th>Material</th>
<th>Viscosity (mPa·s) (cPs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>petroleum ether</td>
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<tr>
<td>water, ethanol, flux</td>
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<tr>
<td>glycerin</td>
<td>10</td>
</tr>
<tr>
<td>olive oil, sunflower oil</td>
<td>100</td>
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<tr>
<td>low-viscosity silicone oil</td>
<td>1000</td>
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<tr>
<td>low-viscosity grease</td>
<td>10000</td>
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<tr>
<td>silicone oil, grease, UV adhesive, filled adhesive</td>
<td>100000</td>
</tr>
<tr>
<td>highly filled adhesive, low-viscosity solder paste</td>
<td>1000000</td>
</tr>
<tr>
<td>solder paste, heat-conductive paste</td>
<td>10000000</td>
</tr>
</tbody>
</table>

### Examples of Fluids that are Suitable for Jetting
- greases
- oils
- coatings
- disinfectants
- flavorings
- medical reagents
- silicones
- UV-cure adhesives
- cyanoacrylates
- filled materials with evenly distributed particles
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.
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.
Dispensing Robots

EFD’s range of multi-axis systems and in-line dispensing arm offer reliable operation with excellent repeatability for dispensing adhesives and sealants in gasketing, bonding, molding and sealing applications.

The multi-axis systems are true three- and four-dimensional motion control systems that allow easy programming of dots, stripes, arcs, compound arcs and patterns on different planes.

EFD’s in-line dispensing arm offers the flexibility of working as a key part of an automated solution or a stand-alone system. A built-in sequencer allows easy integration of the dispensing arm into in-line transfer systems, rotary tables and palletizing solutions.

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

Features and Benefits

- Easily programmed
- Produces more parts and reduces process time
- Height sensor for critical deposit control
- Fully integrated positioning and dispensing functions

Please contact your local Nordson EFD Sales Representative for information regarding our robots.
## DISPENSING ROBOTS

### Applications:
- Dam and Fill
- Dots
- Gasketing
- Patterns
- Underfills

### For use with:
- Adhesives
- Conformal Coatings
- Cyanoacrylates
- Greases
- Paints
- Reagents
- Sealants
- Solder Pastes
- Solvents

### In-Line Dispensing Arm

### SPECIFICATIONS

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<td>5-Phase Stepping Motor</td>
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<td>5-Phase Stepping Motor with Encoder</td>
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83
**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

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**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: 19.1" 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.)
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
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 LED’s.

**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.

### ALLOY CHART

<table>
<thead>
<tr>
<th>Alloy:</th>
<th>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</td>
<td>163</td>
<td>6120</td>
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<tr>
<td>Sn62 Pb36 Ag2</td>
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<td>189</td>
<td>6700</td>
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<tr>
<td>Sn63 Pb37</td>
<td>183</td>
<td>6700</td>
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<td>Sn60 Pb40</td>
<td>183</td>
<td>191</td>
<td>6200</td>
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<td>4900</td>
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<td>Sn10 Pb90</td>
<td>275</td>
<td>302</td>
<td>4600</td>
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<td>Sn5 Pb92.5 Ag2.5</td>
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### LEAD-FREE ALLOY CHART

<table>
<thead>
<tr>
<th>Alloy:</th>
<th>Solidus (°C)</th>
<th>Liquidus (°C)</th>
<th>Tensile Strength (psi)</th>
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</thead>
<tbody>
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<td>Sn65.5 Ag3.0 Cu0.5</td>
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<td>Sn65.3 Ag3.7</td>
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<td>Sn95 Ag5</td>
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<tr>
<td>Sn90 Sb10</td>
<td>250</td>
<td>257</td>
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</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.

### 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.

### Specifications

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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</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>Temperature Range</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Appearance</td>
<td>Smooth, Off-White Paste</td>
<td>Smooth, White Paste</td>
<td>Smooth Paste</td>
</tr>
<tr>
<td></td>
<td></td>
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</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.
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

Specifications

- Cabinet size: 52.3W x 71.1H x 22.9D cm (21”W x 28”H x 9”D)
- 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, 50/60 Hz
- Machine power requirement: 24 VDC, 0.5 Amp maximum
- Max. input shop air pressure: 120 psi (8.3 bar)
- An electrical fuse: 250 volt, 1Amp, 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>
</tr>
<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.
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.
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**
EFD’s newest disposable static mixer ensures superior mixing performance and allows the operator to be closer to the work piece.

**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.
### 85 SERIES STAINLESS STEEL SPIRAL PIPE MIXERS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mixing Elements</th>
<th>Element Diameter</th>
<th>Housing Ends</th>
<th>Housing Length</th>
<th>Housing Outside Diameter</th>
<th>Pressure Limit (psi @300°F / bar @ 150°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7700180</td>
<td>12</td>
<td>9.30 mm (0.366&quot;)</td>
<td>1/4&quot; mnpt</td>
<td>10.67 cm (4.20&quot;)</td>
<td>13.72 mm (0.54&quot;)</td>
<td>8500 psi (585 bar)</td>
</tr>
<tr>
<td>7700181</td>
<td>18</td>
<td>9.30 mm (0.366&quot;)</td>
<td>1/4&quot; mnpt</td>
<td>15.75 cm (6.20&quot;)</td>
<td>13.72 mm (0.54&quot;)</td>
<td>8500 psi (585 bar)</td>
</tr>
<tr>
<td>7700182</td>
<td>24</td>
<td>9.30 mm (0.366&quot;)</td>
<td>1/4&quot; mnpt</td>
<td>20.83 cm (8.20&quot;)</td>
<td>13.72 mm (0.54&quot;)</td>
<td>8500 psi (585 bar)</td>
</tr>
<tr>
<td>7700183</td>
<td>30</td>
<td>9.30 mm (0.366&quot;)</td>
<td>1/4&quot; mnpt</td>
<td>25.40 cm (10.00&quot;)</td>
<td>13.72 mm (0.54&quot;)</td>
<td>8500 psi (585 bar)</td>
</tr>
<tr>
<td>7700193</td>
<td>24</td>
<td>12.62 mm (0.497&quot;)</td>
<td>3/8&quot; mnpt</td>
<td>27.18 cm (10.70&quot;)</td>
<td>17.15 mm (0.68&quot;)</td>
<td>7250 psi (500 bar)</td>
</tr>
<tr>
<td>7700195</td>
<td>30</td>
<td>12.62 mm (0.497&quot;)</td>
<td>3/8&quot; mnpt</td>
<td>33.32 cm (13.12&quot;)</td>
<td>17.15 mm (0.68&quot;)</td>
<td>7250 psi (500 bar)</td>
</tr>
<tr>
<td>7700199</td>
<td>30</td>
<td>16.00 mm (0.630&quot;)</td>
<td>1/2&quot; mnpt</td>
<td>41.66 cm (16.40&quot;)</td>
<td>21.34 mm (0.84&quot;)</td>
<td>7250 psi (500 bar)</td>
</tr>
<tr>
<td>7700205</td>
<td>24</td>
<td>19.91 mm (0.784&quot;)</td>
<td>1/2&quot; mnpt</td>
<td>41.66 cm (16.40&quot;)</td>
<td>26.67 mm (1.05&quot;)</td>
<td>6000 psi (415 bar)</td>
</tr>
<tr>
<td>7700206</td>
<td>32</td>
<td>19.91 mm (0.784&quot;)</td>
<td>1/2&quot; mnpt</td>
<td>55.12 cm (21.70&quot;)</td>
<td>26.67 mm (1.05&quot;)</td>
<td>6000 psi (415 bar)</td>
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### 100 SERIES STAINLESS STEEL SPIRAL PIPE MIXERS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mixing Elements</th>
<th>Element Diameter</th>
<th>Housing Ends</th>
<th>Housing Length</th>
<th>Housing Outside Diameter</th>
<th>Pressure Limit (psi @300°F / bar @ 150°C)</th>
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</thead>
<tbody>
<tr>
<td>7700364</td>
<td>12</td>
<td>6.78 mm (0.267&quot;)</td>
<td>1/8&quot; mnpt</td>
<td>13.67 cm (5.36&quot;)</td>
<td>10.29 mm (0.41&quot;)</td>
<td>4400 psi (303 bar)</td>
</tr>
<tr>
<td>7700366</td>
<td>6</td>
<td>9.22 mm (0.366&quot;)</td>
<td>1/4&quot; mnpt</td>
<td>9.53 cm (3.75&quot;)</td>
<td>13.72 mm (0.54&quot;)</td>
<td>3400 psi (234 bar)</td>
</tr>
<tr>
<td>7700367</td>
<td>12</td>
<td>9.22 mm (0.366&quot;)</td>
<td>1/4&quot; mnpt</td>
<td>17.78 cm (7.00&quot;)</td>
<td>13.72 mm (0.54&quot;)</td>
<td>3400 psi (234 bar)</td>
</tr>
<tr>
<td>7700370</td>
<td>12</td>
<td>12.55 mm (0.494&quot;)</td>
<td>3/8&quot; mnpt</td>
<td>24.13 cm (9.50&quot;)</td>
<td>17.15 mm (0.68&quot;)</td>
<td>7250 psi (500 bar)</td>
</tr>
<tr>
<td>7700372</td>
<td>6</td>
<td>15.83 mm (0.623&quot;)</td>
<td>1/2&quot; mnpt</td>
<td>14.61 cm (5.75&quot;)</td>
<td>21.34 mm (0.84&quot;)</td>
<td>7250 psi (500 bar)</td>
</tr>
<tr>
<td>7700373</td>
<td>12</td>
<td>15.83 mm (0.623&quot;)</td>
<td>1/2&quot; mnpt</td>
<td>27.94 cm (11.00&quot;)</td>
<td>21.34 mm (0.84&quot;)</td>
<td>7250 psi (500 bar)</td>
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<tr>
<td>7700377</td>
<td>12</td>
<td>19.79 mm (0.779&quot;)</td>
<td>3/4&quot; mnpt</td>
<td>37.47 cm (14.75&quot;)</td>
<td>26.67 mm (1.05&quot;)</td>
<td>6000 psi (415 bar)</td>
</tr>
<tr>
<td>7700381</td>
<td>6</td>
<td>26.21 mm (1.032&quot;)</td>
<td>1&quot; mnpt</td>
<td>24.13 cm (9.50&quot;)</td>
<td>33.40 mm (1.32&quot;)</td>
<td>4500 psi (310 bar)</td>
</tr>
<tr>
<td>7700384</td>
<td>12</td>
<td>26.21 mm (1.032&quot;)</td>
<td>1&quot; mnpt</td>
<td>46.99 cm (18.50&quot;)</td>
<td>33.40 mm (1.32&quot;)</td>
<td>4500 psi (310 bar)</td>
</tr>
<tr>
<td>7700391</td>
<td>6</td>
<td>40.13 mm (1.580&quot;)</td>
<td>1-1/2&quot; mnpt</td>
<td>35.56 cm (14.00&quot;)</td>
<td>48.26 mm (1.90&quot;)</td>
<td>3000 psi (207 bar)</td>
</tr>
<tr>
<td>7700395</td>
<td>6</td>
<td>51.69 mm (2.035&quot;)</td>
<td>2&quot; mnpt</td>
<td>44.45 cm (17.50&quot;)</td>
<td>60.33 mm (2.38&quot;)</td>
<td>2500 psi (170 bar)</td>
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</table>
# 160 SERIES DISPOSABLE PLASTIC SPIRAL BELL MIXERS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mixing Elements</th>
<th>Element Diameter</th>
<th>Housing Length</th>
<th>Housing Outside Diameter</th>
<th>Outlet Tip Orifice</th>
<th>Outlet Tip Style</th>
<th>Pressure Limit (psi @ 75°F / bar @ 30°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7700810</td>
<td>8</td>
<td>4.80 mm (0.189&quot;)</td>
<td>6.65 cm (2.62&quot;)</td>
<td>7.62 mm (0.30&quot;)</td>
<td>1.78 mm (0.07&quot;)</td>
<td>Slip Luer</td>
<td>500 psi (34 bar)</td>
</tr>
<tr>
<td>7700811</td>
<td>16</td>
<td>4.80 mm (0.189&quot;)</td>
<td>9.91 cm (3.90&quot;)</td>
<td>7.62 mm (0.30&quot;)</td>
<td>1.78 mm (0.07&quot;)</td>
<td>Slip Luer</td>
<td>500 psi (34 bar)</td>
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<tr>
<td>7700819</td>
<td>24</td>
<td>4.80 mm (0.189&quot;)</td>
<td>13.16 cm (5.18&quot;)</td>
<td>7.62 mm (0.30&quot;)</td>
<td>1.78 mm (0.07&quot;)</td>
<td>Slip Luer</td>
<td>500 psi (34 bar)</td>
</tr>
<tr>
<td>7700824</td>
<td>32</td>
<td>4.80 mm (0.189&quot;)</td>
<td>16.46 cm (6.48&quot;)</td>
<td>7.62 mm (0.30&quot;)</td>
<td>1.78 mm (0.07&quot;)</td>
<td>Slip Luer</td>
<td>500 psi (34 bar)</td>
</tr>
<tr>
<td>7700825</td>
<td>48</td>
<td>4.80 mm (0.189&quot;)</td>
<td>22.96 cm (9.04&quot;)</td>
<td>7.62 mm (0.30&quot;)</td>
<td>1.78 mm (0.07&quot;)</td>
<td>Slip Luer</td>
<td>500 psi (34 bar)</td>
</tr>
<tr>
<td>7700830</td>
<td>8</td>
<td>6.30 mm (0.248&quot;)</td>
<td>9.04 cm (3.56&quot;)</td>
<td>9.40 mm (0.37&quot;)</td>
<td>2.29 mm (0.09&quot;)</td>
<td>Slip Luer</td>
<td>360 psi (25 bar)</td>
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<tr>
<td>7700831</td>
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<td>13.87 cm (5.46&quot;)</td>
<td>9.40 mm (0.37&quot;)</td>
<td>2.29 mm (0.09&quot;)</td>
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<td>360 psi (25 bar)</td>
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<tr>
<td>7700837</td>
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<td>18.49 cm (7.28&quot;)</td>
<td>9.40 mm (0.37&quot;)</td>
<td>2.29 mm (0.09&quot;)</td>
<td>Slip Luer</td>
<td>360 psi (25 bar)</td>
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<tr>
<td>7700856</td>
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<td>24.10 cm (9.49&quot;)</td>
<td>9.40 mm (0.37&quot;)</td>
<td>2.29 mm (0.09&quot;)</td>
<td>Slip Luer</td>
<td>360 psi (25 bar)</td>
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<td>7700866</td>
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<td>33.38 cm (13.14&quot;)</td>
<td>9.40 mm (0.37&quot;)</td>
<td>2.29 mm (0.09&quot;)</td>
<td>Slip Luer</td>
<td>360 psi (25 bar)</td>
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<tr>
<td>7700873</td>
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<td>8.00 mm (0.314&quot;)</td>
<td>17.68 cm (6.96&quot;)</td>
<td>11.71 mm (0.46&quot;)</td>
<td>2.54 mm (0.10&quot;)</td>
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<td>330 psi (23 bar)</td>
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<tr>
<td>7700876</td>
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<td>22.45 cm (8.84&quot;)</td>
<td>11.71 mm (0.46&quot;)</td>
<td>2.54 mm (0.10&quot;)</td>
<td>Stepped</td>
<td>330 psi (23 bar)</td>
</tr>
<tr>
<td>7700879</td>
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<td>29.06 cm (11.44&quot;)</td>
<td>11.71 mm (0.46&quot;)</td>
<td>2.54 mm (0.10&quot;)</td>
<td>Stepped</td>
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<tr>
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<td>13.92 cm (5.48&quot;)</td>
<td>12.95 mm (0.51&quot;)</td>
<td>3.05 mm (0.12&quot;)</td>
<td>Stepped</td>
<td>300 psi (21 bar)</td>
</tr>
<tr>
<td>7013510</td>
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<td>18.49 cm (7.28&quot;)</td>
<td>12.95 mm (0.51&quot;)</td>
<td>3.05 mm (0.12&quot;)</td>
<td>Stepped</td>
<td>300 psi (21 bar)</td>
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<tr>
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<td>23.24 cm (9.15&quot;)</td>
<td>12.95 mm (0.51&quot;)</td>
<td>3.05 mm (0.12&quot;)</td>
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<td>300 psi (21 bar)</td>
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<tr>
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<td>300 psi (21 bar)</td>
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<tr>
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<td>35.92 cm (14.14&quot;)</td>
<td>12.95 mm (0.51&quot;)</td>
<td>3.05 mm (0.12&quot;)</td>
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<tr>
<td>7700941</td>
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<td>56.90 cm (22.4&quot;)</td>
<td>12.95 mm (0.51&quot;)</td>
<td>3.05 mm (0.12&quot;)</td>
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<tr>
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<td>60.96 cm (24.0&quot;)</td>
<td>12.95 mm (0.51&quot;)</td>
<td>3.05 mm (0.12&quot;)</td>
<td>Stepped</td>
<td>300 psi (21 bar)</td>
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<tr>
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<td>12.65 mm (0.497&quot;)</td>
<td>17.04 cm (6.71&quot;)</td>
<td>16.76 mm (0.66&quot;)</td>
<td>4.57 mm (0.18&quot;)</td>
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<td>270 psi (19 bar)</td>
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<tr>
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<td>23.06 cm (9.08&quot;)</td>
<td>16.76 mm (0.66&quot;)</td>
<td>4.57 mm (0.18&quot;)</td>
<td>Stepped</td>
<td>270 psi (19 bar)</td>
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<td>24</td>
<td>12.65 mm (0.497&quot;)</td>
<td>29.46 cm (11.60&quot;)</td>
<td>16.76 mm (0.66&quot;)</td>
<td>4.57 mm (0.18&quot;)</td>
<td>Stepped</td>
<td>270 psi (19 bar)</td>
</tr>
<tr>
<td>7701028</td>
<td>30</td>
<td>12.65 mm (0.497&quot;)</td>
<td>35.79 cm (14.09&quot;)</td>
<td>16.76 mm (0.66&quot;)</td>
<td>4.57 mm (0.18&quot;)</td>
<td>Stepped</td>
<td>270 psi (19 bar)</td>
</tr>
<tr>
<td>7701038</td>
<td>36</td>
<td>12.65 mm (0.497&quot;)</td>
<td>42.24 cm (16.63&quot;)</td>
<td>16.76 mm (0.66&quot;)</td>
<td>4.57 mm (0.18&quot;)</td>
<td>Stepped</td>
<td>270 psi (19 bar)</td>
</tr>
</tbody>
</table>
### 190 SERIES DISPOSABLE PLASTIC SPIRAL BAYONET MIXERS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mixing Elements</th>
<th>Element Diameter</th>
<th>Element Length</th>
<th>Outlet Tip Style</th>
<th>Housing Retained Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>7701408</td>
<td>12</td>
<td>2.36 mm (0.093&quot;)</td>
<td>3.8 cm (1.5&quot;)</td>
<td>Slip Luer</td>
<td>0.10 ml</td>
</tr>
<tr>
<td>7701411</td>
<td>12</td>
<td>3.18 mm (0.125&quot;)</td>
<td>5.3 cm (2.1&quot;)</td>
<td>H-Tapered</td>
<td>0.20 ml</td>
</tr>
<tr>
<td>7701416</td>
<td>24</td>
<td>3.18 mm (0.125&quot;)</td>
<td>8.6 cm (3.4&quot;)</td>
<td>H-Tapered</td>
<td>0.40 ml</td>
</tr>
<tr>
<td>7701417</td>
<td>8</td>
<td>4.75 mm (0.187&quot;)</td>
<td>4.1 cm (1.6&quot;)</td>
<td>Full Bore</td>
<td>0.40 ml</td>
</tr>
<tr>
<td>7701424</td>
<td>16</td>
<td>4.75 mm (0.187&quot;)</td>
<td>8.6 cm (3.4&quot;)</td>
<td>Slip Luer</td>
<td>0.90 ml</td>
</tr>
<tr>
<td>7701436</td>
<td>16</td>
<td>4.75 mm (0.187&quot;)</td>
<td>8.6 cm (3.4&quot;)</td>
<td>H-Tapered</td>
<td>0.90 ml</td>
</tr>
<tr>
<td>7701429</td>
<td>16</td>
<td>4.75 mm (0.187&quot;)</td>
<td>7.4 cm (2.9&quot;)</td>
<td>Full Bore</td>
<td>0.80 ml</td>
</tr>
<tr>
<td>7701438</td>
<td>7</td>
<td>5.40 mm (0.213&quot;)</td>
<td>5.8 cm (2.3&quot;)</td>
<td>Slip Luer</td>
<td>0.90 ml</td>
</tr>
<tr>
<td>7701449</td>
<td>17</td>
<td>5.40 mm (0.213&quot;)</td>
<td>11.2 cm (4.4&quot;)</td>
<td>Stepped</td>
<td>1.90 ml</td>
</tr>
<tr>
<td>7701453</td>
<td>21</td>
<td>5.40 mm (0.213&quot;)</td>
<td>13.5 cm (5.3&quot;)</td>
<td>Stepped</td>
<td>2.40 ml</td>
</tr>
<tr>
<td>7701458</td>
<td>12</td>
<td>6.35 mm (0.250&quot;)</td>
<td>9.9 cm (3.9&quot;)</td>
<td>Slip Luer</td>
<td>1.90 ml</td>
</tr>
<tr>
<td>7701486</td>
<td>16</td>
<td>6.35 mm (0.250&quot;)</td>
<td>12.2 cm (4.8&quot;)</td>
<td>Stepped</td>
<td>2.50 ml</td>
</tr>
<tr>
<td>7701487</td>
<td>20</td>
<td>6.35 mm (0.250&quot;)</td>
<td>15.0 cm (5.9&quot;)</td>
<td>Slip Luer</td>
<td>3.00 ml</td>
</tr>
<tr>
<td>7701488</td>
<td>20</td>
<td>6.35 mm (0.250&quot;)</td>
<td>15.0 cm (5.9&quot;)</td>
<td>Stepped</td>
<td>3.00 ml</td>
</tr>
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<td>7701510</td>
<td>20</td>
<td>6.35 mm (0.250&quot;)</td>
<td>15.0 cm (5.9&quot;)</td>
<td>H-Tapered</td>
<td>3.00 ml</td>
</tr>
<tr>
<td>7701507</td>
<td>20</td>
<td>6.35 mm (0.250&quot;)</td>
<td>13.5 cm (5.3&quot;)</td>
<td>Full Bore</td>
<td>2.80 ml</td>
</tr>
</tbody>
</table>

### 295 SERIES DISPOSABLE PLASTIC TURBO (SQUARE) BAYONET MIXERS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mixing Elements</th>
<th>Element Diameter</th>
<th>Housing Length</th>
<th>Outlet Tip Style</th>
<th>Housing Retained Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>7701840</td>
<td>20</td>
<td>5.15 mm (0.203&quot;)</td>
<td>10.2 cm (4.05&quot;)</td>
<td>Slip Luer</td>
<td>1.4 ml</td>
</tr>
<tr>
<td>7701842</td>
<td>20</td>
<td>5.15 mm (0.203&quot;)</td>
<td>9.2 cm (3.63&quot;)</td>
<td>Full Bore</td>
<td>1.4 ml</td>
</tr>
<tr>
<td>7701836</td>
<td>20</td>
<td>5.15 mm (0.203&quot;)</td>
<td>10.2 cm (4.05&quot;)</td>
<td>LuerLok</td>
<td>1.4 ml</td>
</tr>
</tbody>
</table>
u-TAH™ Nano Cartridge System

The u-TAH Nano is a revolutionary packaging system for mixing and applying 2-component dental and medical materials. This single-use system allows the healthcare professional to accurately and precisely apply mixed material using industry standard “Centrix®” type dispensers.

Applications include dental bonding and impressions, external chemical bandages, tissue sealants, orthopedic adhesives and compounds, glues for reinforcing sutures and impression materials for hearing aids.

Features and Benefits
- Compatible with existing “Centrix” type dispensers
- Superior ergonomics and mechanical advantage
- Single use eliminates risk of cross-contamination
- Accurate and consistent 1:1 ratio dispensing and mixing

How the u-TAH Nano Works

The unit holds the two mixable components, one behind the other, in a single cylinder. As the dispenser plunger advances into the back of the cartridge, materials 1 and 2 are forced simultaneously through separate outlets into a disposable in-line mixer. The ratio of the two components is precisely controlled by the cross-sectional area of the back and front chambers, and is varied by adjusting these diameters. The cutaway drawings above depict the 1:1 ratio.

7704129 u-TAH Nano Dispenser
Use with cartridges #7703269 (white) or #7704120 (black). Both have a 1.0mL capacity with a 1:1 ratio. Use with mixer #7703940 which has 12+ elements and a 3.2 mm diameter.
Other mixers are available. Contact Nordson EFD for recommendations.
u-TAH™ Universal Cartridge System

The u-TAH Cartridge looks identical to standard caulking cartridges. It is the only cartridge system that maintains accurate ratio control and fits into an existing 1/10th gallon or 310mL caulking gun. This system also fits into pneumatic (rod-driven) and battery-powered caulking tools.

The patented in-line design stores one component in front of the other but both are extruded through the cartridge outlet and into a static mixer simultaneously. Special non-vented versions are available to handle very low viscosity fluids. The cartridge is offered in a 1:1 ratio with 250mL volume, a 2:1 ratio with 180mL volume and a 10:1 ratio with 280mL volume. The cartridge body is either nylon or polypropylene construction that won’t burst during most demanding applications, providing trouble-free applications in the field.

Features and Benefits

- Accurate ratio control
- After filling, maintains a superior shelf life
- No need to purchase special-purpose dispensing guns

How the Universal Cartridge Works

The cartridge stores the two mixable components, one in front of the other. As shown in the diagram, the rear piston is stationary. As the inner can is pushed forward, the orange fluid is extruded into the center tube, through the cartridge outlet, and into the mixer. At the same time, the movable piston causes the blue fluid to be extruded through the cartridge outlet and into the mixer. The cartridge in the diagram shows a 1:1 ratio, although a 2:1 ratio cartridge is also available. With the 2:1 cartridge, the stationary piston and inner cartridge have a smaller diameter and cross sectional area.

- **7703997**
  1:1 vented cartridge system with 250mL volume and polypropylene construction.

- **7704048**
  1:1 vented cartridge system with 250mL volume and nylon construction.

- **7702988**
  1:1 non-vented cartridge system with 250mL volume and polypropylene construction.

- **7702991**
  2:1 vented cartridge system with 180mL volume and polypropylene construction.

- **7702994**
  2:1 non-vented cartridge system with 180mL volume and polypropylene construction.

- **7702996**
  10:1 vented cartridge system with 280mL volume and nylon construction.
Cartridge Systems

EFD produces a variety of side-by-side cartridges, from 50mL to 600mL sizes. A large selection of static mixers in spiral and square configurations are available to provide complete system solutions.

50mL Bayonet Cartridge

Available in 1:1, 2:1, 4:1, and 10:1 ratios. Each is available in an open-end cartridge with a polyethylene plug and retaining cap. The durable plug is inert to most adhesives such as epoxies, urethanes, acrylics or silicones. The popular 1:1 and 2:1 ratios are also offered with a hermetically-sealed closed end option.

200mL Cartridge

High quality one-piece design features 1:1 and 2:1 ratios with a total volume capacity of 215mL for 1:1 ratio and 222mL for 2:1 ratio. Available in open or closed outlet with a solid multi-seal piston, multi-seal piston with prestage center bleed plug or the new AF seal (1:1 ratio only) that allows for one-step insertion and bleeds air around the circumference of the piston without using a shim.

400mL Cartridge

Sturdy one-piece design features a 1:1 ratio with a total volume capacity of 406mL (approximately 200mL in each side). Available with a solid multi-seal piston or multi-seal piston with prestage center bleed plug.

600mL Cartridge

Large cartridge offers a 1:1 ratio with a total volume capacity of 630mL (approximately 300mL in each side). Available with a solid multi-seal piston or multi-seal piston with prestage center bleed plug.

Recommended mixers, dispensers and pistons to complete the cartridge systems

50mL Bayonet Cartridge

Mixers: Series 190 spiral mixers
Series 295 turbo bayonet mixers
Dispensers: 50mL manual dispenser
Caulking gun conversion kit
Pistons: Solid O-ring
Solid multi-seal
Multi-seal with a prestaged center
Bleed plug (prevents trapped air when inserting the piston without a shim)
AF piston for one-step insertion
(1:1 ratio only)

200mL Cartridge

Mixers: Series 160 disposable plastic spiral bell mixers
Series 260 spiral bell mixers
Series 180A turbo bell mixers
Dispensers: Contact EFD for manual and pneumatic dispensers for 200mL cartridges
Pistons: Solid multi-seal
Multi-seal with a prestaged center
Bleed plug (prevents trapped air when inserting the piston without a shim)
AF piston for one-step insertion
(1:1 ratio only)

400mL and 600mL Cartridges

Mixers: Series 160 disposable plastic spiral bell mixers
Series 260 spiral bell mixers
Series 180A turbo bell mixers
Dispensers: Contact EFD for manual and pneumatic dispensers for 400mL and 600mL cartridges
Pistons: Solid multi-seal
Multi-seal with a prestaged center
Bleed plug (prevents trapped air when inserting the piston without a shim)
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 1:1 side x side cartridges and static mixers.

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

Atlas 2K Piston Inserter

The Atlas 2K Piston Inserter is a fast, convenient and cost-effective way to install new AF (Aire Free) pistons in 50mL and 200mL side x side cartridges.

These self-venting pistons combine excellent chemical compatibility with an airtight, leakproof seal that ensures safe shipment and long shelf life. They also save time and effort by eliminating the need to insert shims or bleed plugs during the packaging process.

As they are inserted into the cartridge, AF pistons quickly bleed any air left between the material and the piston. A unique plug in the center of the piston automatically closes when all air has been removed and the entire piston face contacts the material.

Features and Benefits
- Simple to set up and operate
- Pistons seat correctly every time
- Compact, space-saving footprint
# 200mL CARTRIDGE SYSTEMS

## 200mL Cartridges

<table>
<thead>
<tr>
<th>Part #</th>
<th>Ratio</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>7702601</td>
<td>1:1</td>
<td>215mL open cartridge with installed nose plug &amp; 3/8” nut</td>
<td>PP</td>
</tr>
<tr>
<td>7703001</td>
<td>1:1</td>
<td>215mL open cartridge with installed nose plug &amp; 1/2” nut</td>
<td>PP</td>
</tr>
<tr>
<td>7702942</td>
<td>1:1</td>
<td>215mL closed cartridge with protective cap</td>
<td>PP</td>
</tr>
<tr>
<td>7702943</td>
<td>1:1</td>
<td>215mL closed cartridge with protective cap</td>
<td>nylon</td>
</tr>
<tr>
<td>7702725</td>
<td>1:1</td>
<td>222mL closed cartridge with protective cap</td>
<td>PP</td>
</tr>
<tr>
<td>7702945</td>
<td>1:1</td>
<td>222mL closed cartridge with protective cap</td>
<td>nylon</td>
</tr>
</tbody>
</table>

## 200mL Pistons

<table>
<thead>
<tr>
<th>Part #</th>
<th>Ratio</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>7702664</td>
<td>1:1</td>
<td>Solid multi-seal piston</td>
<td>PP</td>
</tr>
<tr>
<td>7702665</td>
<td>1:1</td>
<td>Solid multi-seal piston</td>
<td>nylon</td>
</tr>
<tr>
<td>7702724</td>
<td>1:1</td>
<td>Multi-seal piston with prestaged bleed plug</td>
<td>PP</td>
</tr>
<tr>
<td>7702725</td>
<td>1:1</td>
<td>Multi-seal piston with prestaged bleed plug</td>
<td>PP</td>
</tr>
<tr>
<td>7704307</td>
<td>1:1</td>
<td>AF piston*</td>
<td>PE/PBT</td>
</tr>
<tr>
<td>7702672</td>
<td>2:1</td>
<td>Solid multi-seal piston (small)</td>
<td>PP</td>
</tr>
<tr>
<td>7702673</td>
<td>2:1</td>
<td>Solid multi-seal piston (large)</td>
<td>PP</td>
</tr>
<tr>
<td>7702752</td>
<td>2:1</td>
<td>Multi-seal piston with prestaged bleed plug (small)</td>
<td>PP</td>
</tr>
<tr>
<td>7015948</td>
<td>2:1</td>
<td>Multi-seal piston with prestaged bleed plug (small)</td>
<td>nylon</td>
</tr>
<tr>
<td>7702754</td>
<td>2:1</td>
<td>Multi-seal piston with prestaged bleed plug (large)</td>
<td>PP</td>
</tr>
<tr>
<td>7015949</td>
<td>2:1</td>
<td>Multi-seal piston with prestaged bleed plug (large)</td>
<td>nylon</td>
</tr>
</tbody>
</table>

Note: 300mL system also available.

---

# 400mL CARTRIDGE SYSTEMS

## 400mL Cartridges

<table>
<thead>
<tr>
<th>Part #</th>
<th>Ratio</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>7703011</td>
<td>1:1</td>
<td>406mL open cartridge with installed nose plug &amp; 3/8” nut</td>
<td>PP</td>
</tr>
<tr>
<td>7703013</td>
<td>1:1</td>
<td>406mL open cartridge with installed nose plug &amp; 1/2” nut</td>
<td>PP</td>
</tr>
<tr>
<td>7028234</td>
<td>1:1</td>
<td>406mL open cartridge with installed nose plug &amp; 1/2” nut</td>
<td>nylon</td>
</tr>
<tr>
<td>7702965</td>
<td>1:1</td>
<td>406mL closed cartridge with protective cap</td>
<td>PP</td>
</tr>
<tr>
<td>7702968</td>
<td>1:1</td>
<td>406mL closed cartridge with protective cap</td>
<td>nylon</td>
</tr>
</tbody>
</table>

## 400mL Pistons

<table>
<thead>
<tr>
<th>Part #</th>
<th>Ratio</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>7702777</td>
<td>1:1</td>
<td>Solid multi-seal piston</td>
<td>PP</td>
</tr>
<tr>
<td>7702678</td>
<td>1:1</td>
<td>Solid multi-seal piston</td>
<td>nylon</td>
</tr>
<tr>
<td>7702757</td>
<td>1:1</td>
<td>Multi-seal piston with prestaged bleed plug</td>
<td>PP</td>
</tr>
<tr>
<td>7702759</td>
<td>1:1</td>
<td>Multi-seal piston with prestaged bleed plug</td>
<td>nylon</td>
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</table>

## 600mL Cartridges

<table>
<thead>
<tr>
<th>Part #</th>
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<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>7702971</td>
<td>1:1</td>
<td>630mL closed cartridge with protective cap</td>
<td>PP</td>
</tr>
</tbody>
</table>

## 600mL Pistons

<table>
<thead>
<tr>
<th>Part #</th>
<th>Ratio</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>7702684</td>
<td>1:1</td>
<td>Solid multi-seal piston</td>
<td>PP</td>
</tr>
<tr>
<td>7702765</td>
<td>1:1</td>
<td>Multi-seal piston with prestaged bleed plug</td>
<td>PP</td>
</tr>
</tbody>
</table>

Note: Cartridges and pistons shown are polypropylene or nylon with the exception of AF pistons* which are Polyethylene/Polybutylene Terephthalate (PE/PBT).
Autovalves

EFD meter mix offerings consist of a meter mix dispenser and a static mixer. They set the standard for high-volume, two-component dispensing operations by combining easy, reliable operation with simplified maintenance.

Meter mix valves feature an innovative design that prevents cross-contamination by keeping A and B components separate until they enter the mixer—an approach that reduces downtime by eliminating the need for solvent flushing. When cleaning is required, the modular design permits fast, easy disassembly.

Spiral mixers attach to the dispenser manifold and blend the components into a homogeneous mix that ensures optimal material performance. Mixers are available in different styles and element configurations to accommodate a wide variety of materials and production requirements.

400HF High Flow Valve  Permits flow rates of 4-5 gallons per minute, depending on pump capability and material viscosity. The valve dispenses low to high viscosity urethanes, epoxies and silicones.

450RC Recirculating Valve  Allows continuous flow of material while still being able to control shutoff at the mixer. Typical uses are for heated materials or materials with fillers that need to remain suspended. Gear pump applications can also benefit from the recirculating valve because pumps can be kept running while material is shut off at the mixer.

450XT Snuff Back Valve  Designed specifically for dispensing two-component urethanes. Since two-component urethanes are moisture sensitive, any contact with air can cure the material, locking up the dispense valve. This production proven design eliminates exposure of wetted shafts to air. Optional stainless steel valve is available for corrosive acrylics or epoxies.

Features and Benefits

- Dispenses two-component adhesives and sealants
- Can be mounted for beads or timed shots
- Aluminum or stainless steel configurations

400 Series Autovalves
- 7701895  Aluminum valve with single air cylinder and TPV seals.
- 7701924  Aluminum valve with single air cylinder and TPV seals.

450RC Series Snuff Back Autovalves
- 7702201  Aluminum valve with single air cylinder with snuffback and GT seals.
- 7702209  Aluminum valve with single air cylinder with snuffback and PV seals.
- 7702443  Stainless steel valve with single air cylinder with snuffback and GT seals.

450XT Series Snuff Back Autovalves
- 7702216  Aluminum valve extended air cylinder with snuffback and GT seals.
- 7702447  Stainless steel valve with extended air cylinder with snuffback and GT seals.

Contact Nordson EFD for manifold selection and a complete list of accessories.
Manual Dispensers

550 Low Pressure Manual Dispenser
Intended for low-pressure meter mix applications. This manual dispenser is ideal for dispensing beads or RTM casting. The design is simple: two ball valves are threaded into the back of the manifold and are connected to a common lever so that both valves open and close at the same time.

600 High Flow (MEGA) Manual Dispenser
Specifically designed to be used with the 162A Series disposable 3/4" diameter static mixer. Allows the user to handle both high flow and high viscosity materials easily. The A & B components are separately ported through the valve body and do not combine until they meet inside the static mixer.

Features and Benefits
- Moderately priced
- Materials remain separate until they enter the mixer

550 Series Manual Dispensers
- 7702508 Aluminum valve with series 160 outlet and wide ratio.
- 7702511 Aluminum valve with series 160 outlet and high flow.
- 7702515 Aluminum valve with series 160 outlet and low flow.

600 Series Manual Dispensers
- 7702569 1/2" FNPT material inlet and maximum working pressure of 600 psi (40 bar).

Contact Nordson EFD for manifold selection and a complete list of accessories.
### Dot Volumes

Volume = \( D^3 \times 0.5236 \div 2^* \)  
(* 1/2 the volume of a sphere)

<table>
<thead>
<tr>
<th>Volume of Dots</th>
<th>dot mm</th>
<th>inches</th>
<th>V cc</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00003</td>
<td>0.5</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>0.0001</td>
<td>0.8</td>
<td>0.03</td>
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<tr>
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<td>1.0</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>0.0005</td>
<td>1.3</td>
<td>0.05</td>
<td></td>
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<tr>
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<td>3.8</td>
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<tr>
<td>4.3</td>
<td>0.17</td>
<td>0.021</td>
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</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 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>2000 - 3000</td>
</tr>
<tr>
<td>Molasses</td>
<td>5000 - 10,000</td>
</tr>
<tr>
<td>Chocolate Syrup</td>
<td>10,000 - 25,000</td>
</tr>
<tr>
<td>Ketchup or Mustard</td>
<td>50,000 - 70,000</td>
</tr>
<tr>
<td>Tomato Paste or Peanut Butter</td>
<td>150,000 - 250,000</td>
</tr>
<tr>
<td>Shortening or Lard</td>
<td>1,000,000 - 2,000,000</td>
</tr>
<tr>
<td>Caulking Compound</td>
<td>5,000,000 - 10,000,000</td>
</tr>
<tr>
<td>Window Putty</td>
<td>100,000,000</td>
</tr>
</tbody>
</table>

Centipoise

Conversion Factors

| 100 Centipoise | = | 1 Poise |
| 1 Centipoise   | = | 1 mPa•s (Millipascal Second) |
| 1 Poise        | = | 0.1 Pa•s (Pascal Second)    |
| Centipoise     | = | Centistoke x Density        |

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 30 countries, contact EFD or go to www.nordsonefd.com

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