

LUBRICATION OF MINI-FIT SR. TIN PLATED TERMINALS

1.0 SCOPE

This document describes the recommended method for application of lubricant. Lubricant is required only on terminals with tin plating in the mating / contact area. Lubricant is not required on terminals with gold plating in the mating / contact area. Never mate tin to gold.

2.0 PRODUCT DESCRIPTION

Mini-Fit Sr. 10.00 mm / .394 in. centerline tin plated connector series, single and dual row versions in wire to wire and wire to printed circuit board applications.

PRODUCT NAME AND PART NUMBER

| <u>Product Name</u> | <u>Part Number</u> |
|---------------------------------|--------------------|
| Female Crimp Terminal | 42815-**** |
| Male Crimp Terminal | 42817-**** |
| Receptacle Hsg (single row) | 42816-**** |
| Plug Hsg (single row) | 42818-**** |
| Vertical Header (single row) | 42819-**** |
| Right Angle Header (single row) | 42820-**** |
| Receptacle Hsg (dual row) | 43914-**** |
| TPA (dual row) | 43980-**** |
| Vertical Header (dual row) | 43915-**** |
| Panel Mount Plug Hsg (dual row) | 43938-**** |

3.0 REFERENCE DOCUMENTS

PS-42815-001

4.0 PROCEDURE

4.1 GENERAL REQUIREMENTS

Thermal cycling, vibration, and other factors can cause micro-motion within a mated connection. Micro-motion without lubricant may lead to fretting corrosion on terminals with tin plating in the mating / contact area. Due to the many factors that may be present in an application, Molex highly recommends the use of lubrication on all Mini-Fit Sr. terminals with tin plating in the mating / contact area, for reliability assurance.

4.2 INSTRUCTIONS

When using Mini-Fit Sr. terminals with tin plating in the mating / contact area, Molex strongly recommends the use of Nye lubricant, Nyogel 760G, on the mating area of the terminal.

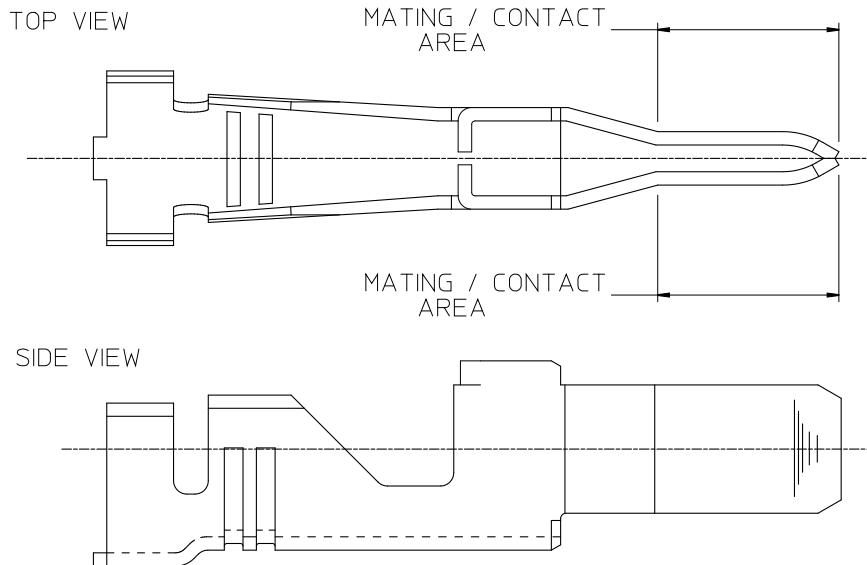
Lubricant should be applied *after* the terminals are inserted into the housing.

Lubricant should be applied *after* the terminals are crimped to wire.

| | | | |
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| REVISION: | ECR/ECN INFORMATION: | TITLE: | SHEET No. |
| A1 | EC No: UCP2013-1360 DATE: 2012 / 10 / 05 | Lubrication of Mini-Fit Sr. Tin plated terminals | 1 of 8 |
| DOCUMENT NUMBER: | CREATED / REVISED BY: | CHECKED BY: | APPROVED BY: |
| AS-42815-001 | Blake Anderson | Awad Elhag | Fran SmithRoemer |

Lubricant should be applied to the male, *not female*, terminals. Insertion of any object inside the female terminals presents a risk of damage resulting in reduction of normal force and potential increased contact resistance.

Lubricant should be applied to *both sides* of the male terminals. The entire contact surface area should be covered with lubricant.



LUBRICANT SHOULD BE APPLIED IN A THIN, UNIFORM COATING WITH COMPLETE COVERAGE ON BOTH SIDES OF THE MATING / CONTACT AREA.

Care must be taken to prevent any scratching or damage to the plating in the contact area during lubricant application. Pure tin plating is a very soft metal which is easily scratched by any other metal or hard material.

Avoid contamination of lubricant from dust, dirt, or any other material. Take care that the application method used does not introduce contaminants (such as fibers from a cloth or cotton swab). Contaminants or fibers could potentially affect the contact resistance.

On PCB header applications, lubricant must be applied *after* soldering the header to the board. Nyogel 760G will not survive the heat of soldering (especially reflow) processes.

Nye Nyogel 760G technical data sheet is included in appendix 1.

| | | | |
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4.3 APPLICATION

Nyogel 760G can be applied to Mini-Fit Sr. tin-plated terminals in many different ways. Some sample application methods are shown in appendix 3.

- Soft plastic scraper / putty knife
- Foam (non-fiber) swab (such as <http://www.zeph.com/swabs.htm>)
- Brush
- Syringe
- Immersion
- Spray
- Automation
- Robotic
- Other methods may also be acceptable as long as care is taken to prevent any damage to the terminal or plating.
- Please contact the manufacturer for recommendations and current availability.

Depending on the method selected, Nyogel 760G can be procured in many different packaging options, some examples of which are shown in appendix 2.

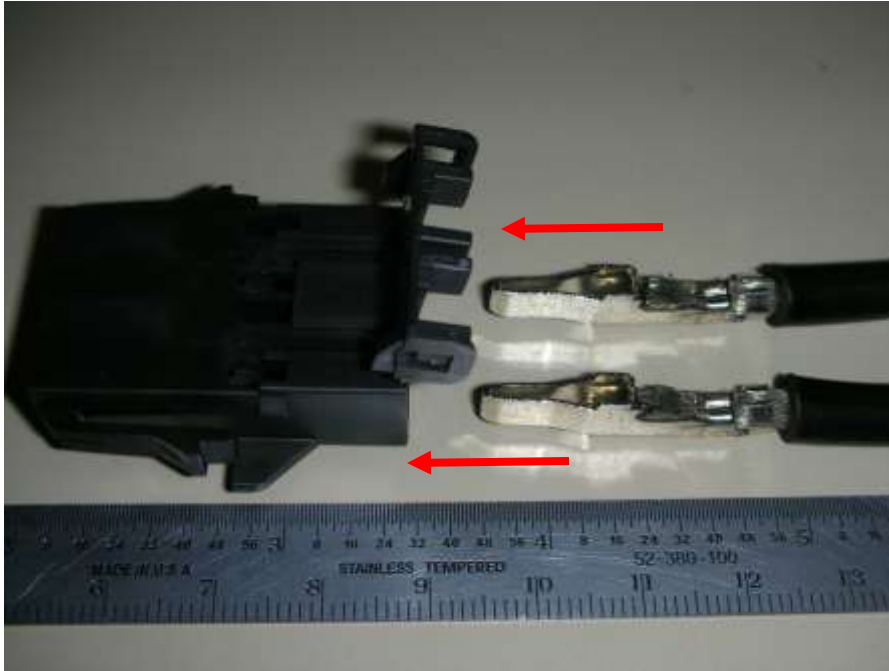
- Pipette
- Syringe
- Pouch
- Tube
- Jar
- Pail
- Drum
- Please contact the manufacturer for recommendations and current availability.

Typically, the first step in applying Nyogel 760G should be to determine the preferred application method, based on production volumes, speeds, ergonomic factors, cost considerations, etc. The application method will then drive the packaging selection.

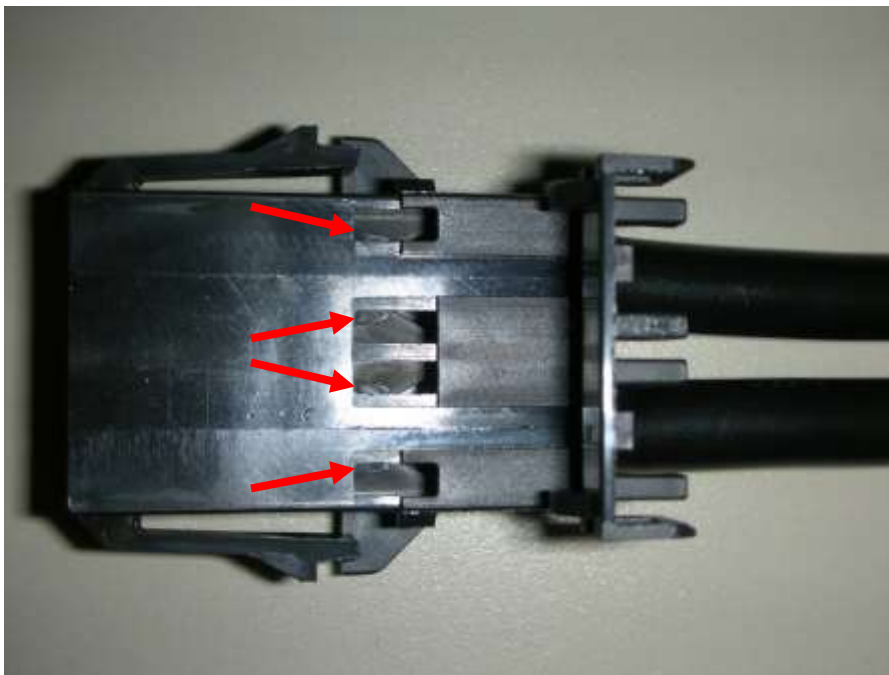
The availability of application equipment and Nyogel 760G packaging options is constantly evolving. The examples shown in appendices 2 and 3 are provided for reference only; please contact the manufacturers for recommendations and current availability.

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4.4 MALE TERMINAL INSERTION INSTRUCTIONS



Insert crimped terminals into housing in proper orientation (as shown, top of crimp towards terminal position assurance, TPA).

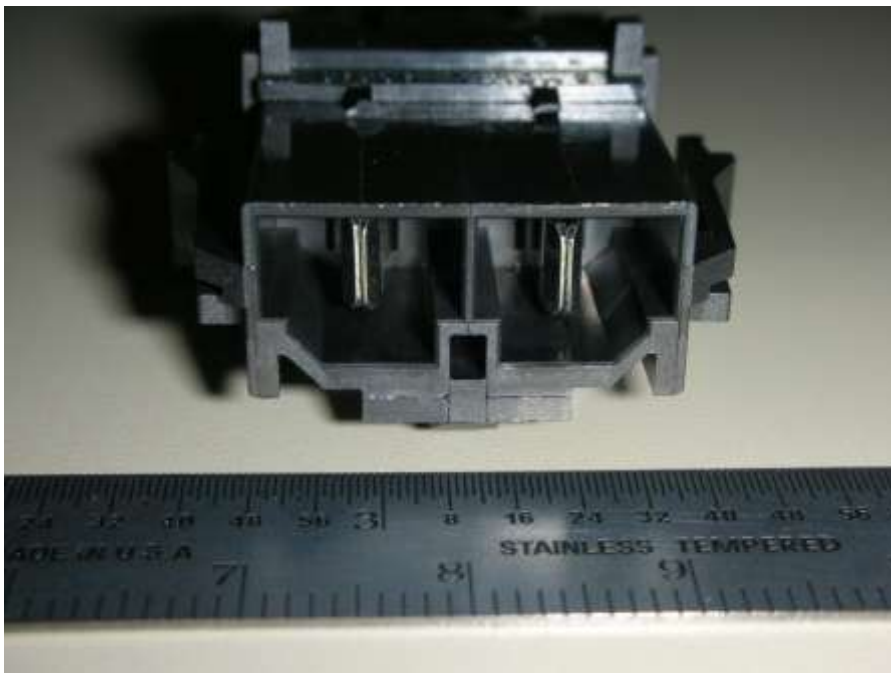


Confirm terminals are fully seated, as indicated by plastic locking tabs dropping into position (visible thru TPA windows).

| | | | |
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Install and latch TPA. If TPA doesn't latch easily, re-seat terminals.
Never use Mini-Fit Sr. without the TPA properly installed, fully engaged, and latched!



End view of terminals properly installed in housing.

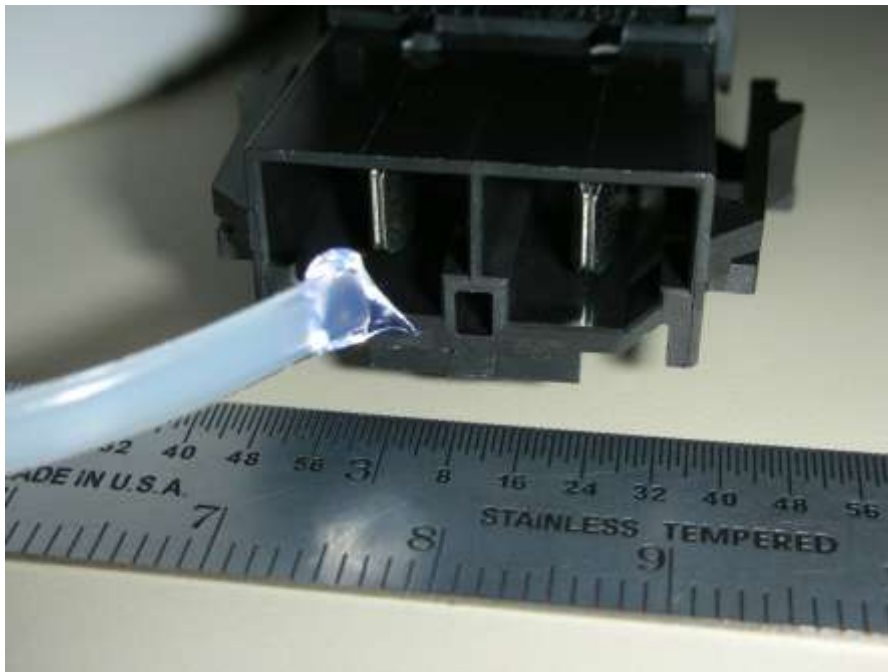
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4.5 LUBRICATION INSTRUCTIONS, MANUAL PROCESS



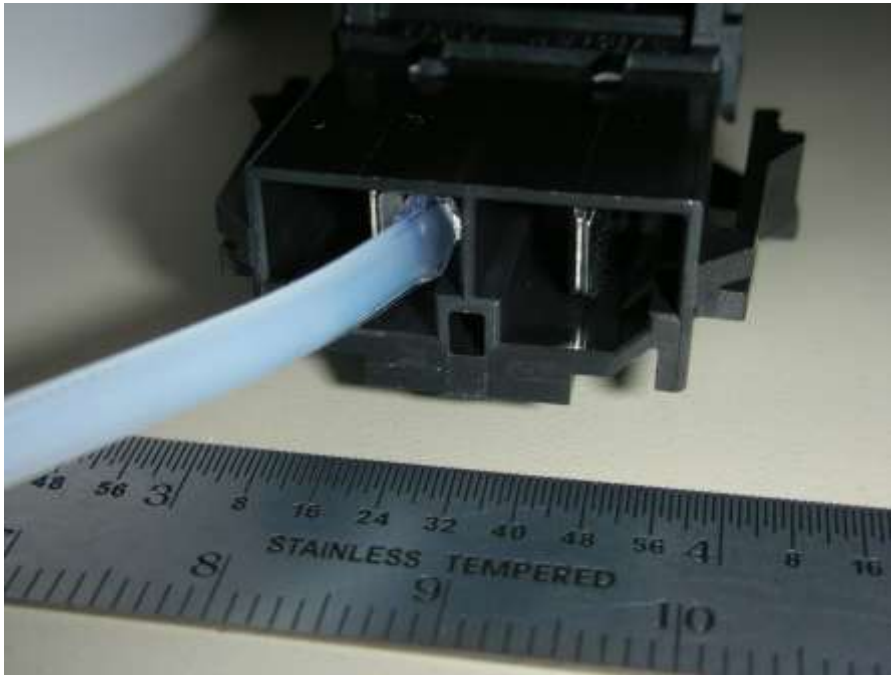
Apply a small dab of Nyogel 760G to the application tool selected.

Depending on the application, select Nyogel 760G in the most appropriate packaging form, and matched to the chosen dispensing method. Shown here is a manual method using a soft plastic scraper. Other methods may be selected if needed for higher-volume production.



Carefully insert Nyogel 760G into the housing.

| | | | |
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Apply Nyogel 760G to both sides of every male terminal.

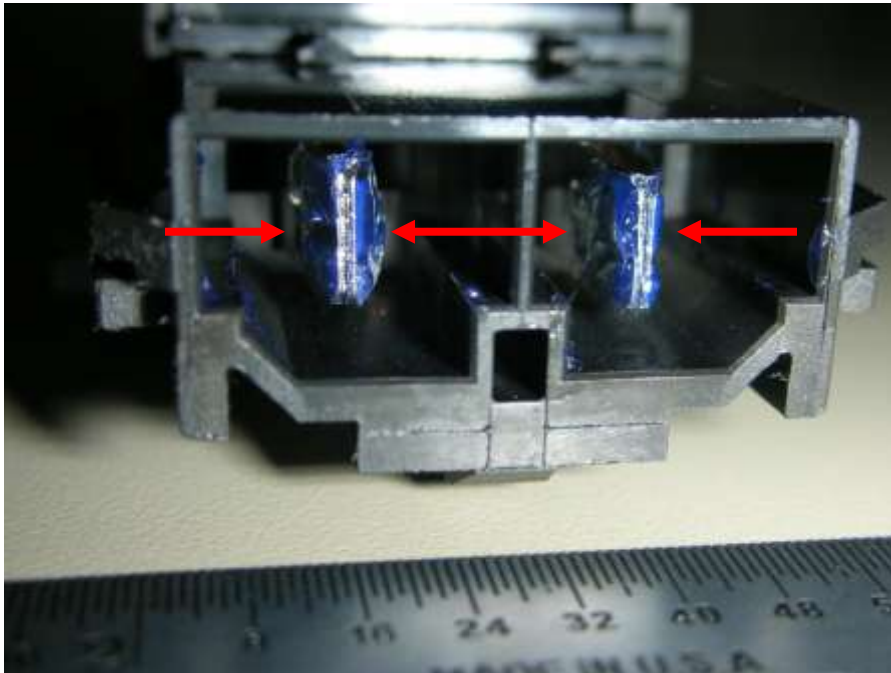


Photo of Nyogel 760G applied to both sides of each male terminal, covering the contact areas. Manual methods may result in use of more lubricant than necessary. Precision application methods (although potentially more costly up-front) are available, and will help reduce lubricant use (and cost), and minimize the mess and potential contamination of overuse, as well as reducing labor. Contact the manufacturers for recommended application methods.

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Another low-volume method is use of a syringe. Use a soft tip or other methods to prevent scratching the plating.

4.6 SUPPORT

For further information, please contact:

Molex
2222 Wellington Court
Lisle, IL 60532
USA
+1 (807) 786-6539
<http://www.molex.com>
<http://www.molex.com/molex/contact/mxcontact.jsp>

Nye Lubricants, Inc.
12 Howland Road
Fairhaven, MA 02719
USA
+1 (508) 996-6721– ask for tech support
<http://www.nyelubricants.com/>

Nordson EFD (Engineered Fluid Dispensing)
40 Catamore Blvd.
East Providence, RI
USA
+1 (800) 556 3484 – ask for tech support
<http://www.nordsonefd.com/>

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APPENDIX 1

Nye Nyogel 760G Technical Data Sheet

DOCUMENT NUMBER:

AS-42815-001

TITLE:

**Lubrication of Mini-Fit Sr.
Tin plated terminals**

Copper Deactivator, UV Tracer

A silica thickened, medium viscosity, synthetic hydrocarbon grease for lubrication and protection of electrical contacts. Benefits include good water resistance.

Ford: WSB-M1C239-A, GM: 9986087, DaimlerChrysler: MS-9469

| Lubricant Properties | | | Typical Value | Test Method |
|----------------------------------|---------------------|-------|-----------------|-----------------------|
| Recommended Service Range (°C) | | | -40 to 135 | |
| Thickener | | | Silica | |
| Base Oil | Type | | Polyalphaolefin | |
| | Kinematic Viscosity | 100°C | 39.4 cSt | ASTM D-445 |
| | | 40°C | 400 cSt | ASTM D-445 |
| | Viscosity Index | | 147 | ASTM D-2270 |
| | Flash Point | | °C 321 | ASTM D-92 |
| | Pour Point | | °C -36 | ASTM D-97 |
| Typical Properties of the Grease | | | Typical Value | Test Method |
| Color, Appearance | | | Clear | |
| Penetration (1/10 mm) | Unworked | | 266 | ASTM D-217 |
| | Worked | 60 X | 286 | ASTM D-217 |
| | NLGI Grade | | 2 | ASTM D-217 |
| Density | 25°C | | 0.92 g/cm³ | NYE CTM |
| Oil Separation | 24 hour(s) | 100°C | 1.5 % | FTM 791, Method 321.2 |
| Evaporation | 24 hour(s) | 100°C | 0.3 % | NYE CTM |
| Copper Corrosion | | | | |

The typical properties shown on this product data sheet should not be used as a basis for preparing specifications. Refer to our product MSDS for detailed safety information for this product. (1201)

APPENDIX 2

Packaging Options (non-comprehensive and subject to change)

The availability of Nyogel 760G packaging options is constantly evolving. The examples shown in this appendix are provided for reference only; please contact the manufacturer for recommendations and current availability.

NYE PACKAGING ITEM: FOIL PACKET – 2GR**NYE PRODUCT SPECIFICATION:**

| PROPERTY | REQUIREMENT | INSPECTION |
|----------|--|------------|
| COLOR | ALUMINUM | Y |
| SIZE | 3 7/8 H x 1 3/4 W = 9.84 cm H x 4.445 cm W | Y |

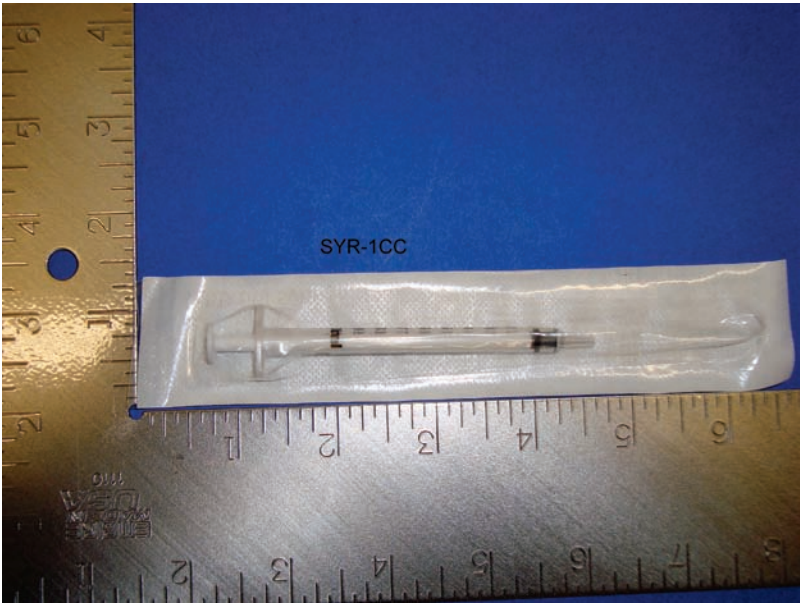
PICTURES:

NYE PACKAGING ITEM: SYR-1CC

NYE PRODUCT SPECIFICATION:

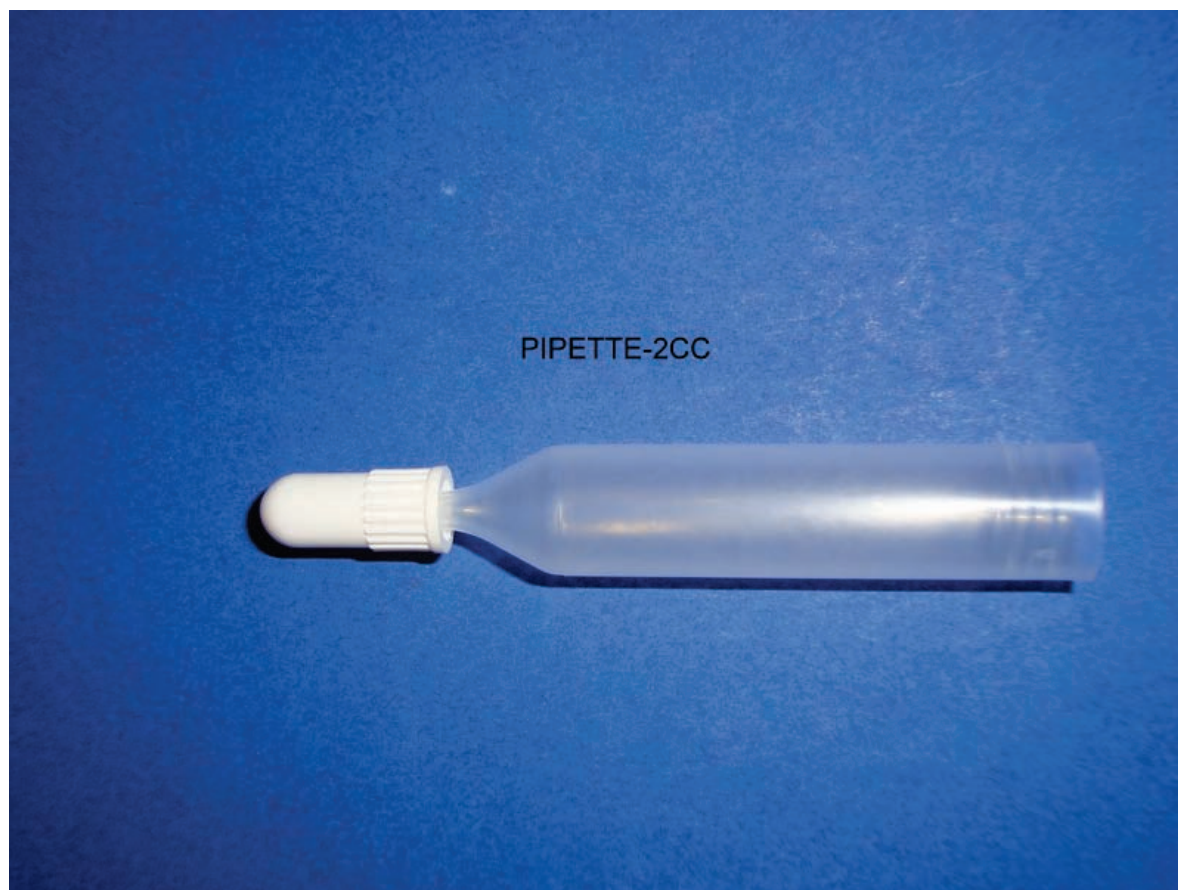
| PROPERTY | REQUIREMENT | INSPECTION |
|----------|--------------------|------------|
| COLOR | CLEAR, PREPACKAGED | Y |

PICTURES:



NYE PACKAGING ITEM: PIPETTE-2CC**NYE PRODUCT SPECIFICATION:**

| PROPERTY | REQUIREMENT | INSPECTION |
|----------|--|------------|
| COLOR | CLEAR w/WHITE CAP | Y |
| SIZE | 2-5/8" x 7/16" = 6.67 cm H x 1.11 cm W | Y |

PICTURES:

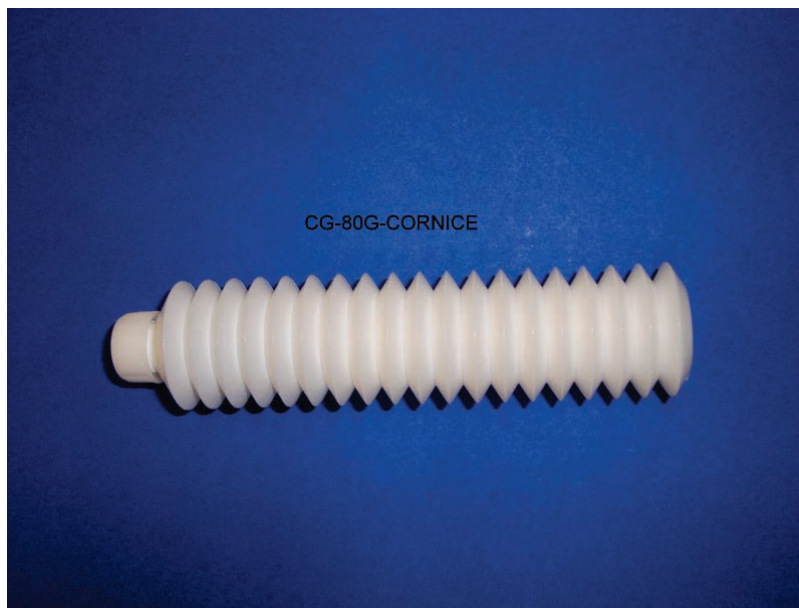
NYE PACKAGING ITEM: TUBE-1/4OZ-PLAS**NYE PRODUCT SPECIFICATION:**

| PROPERTY | REQUIREMENT | INSPECTION |
|----------|--|------------|
| COLOR | WHITE w/ Black Cap | Y |
| SIZE | 3.5" L x .625" W = 8.89 cm H x 1.59 cm W | Y |

PICTURES:

NYE PACKAGING ITEM: CG-80G-CORNICE**NYE PRODUCT SPECIFICATION:**

| PROPERTY | REQUIREMENT | INSPECTION |
|----------|--|------------|
| COLOR | WHITE | Y |
| SIZE | ~5-11/16 H x ~1-3/8 W = 14.45 cm H x 3.46 cm W | Y |

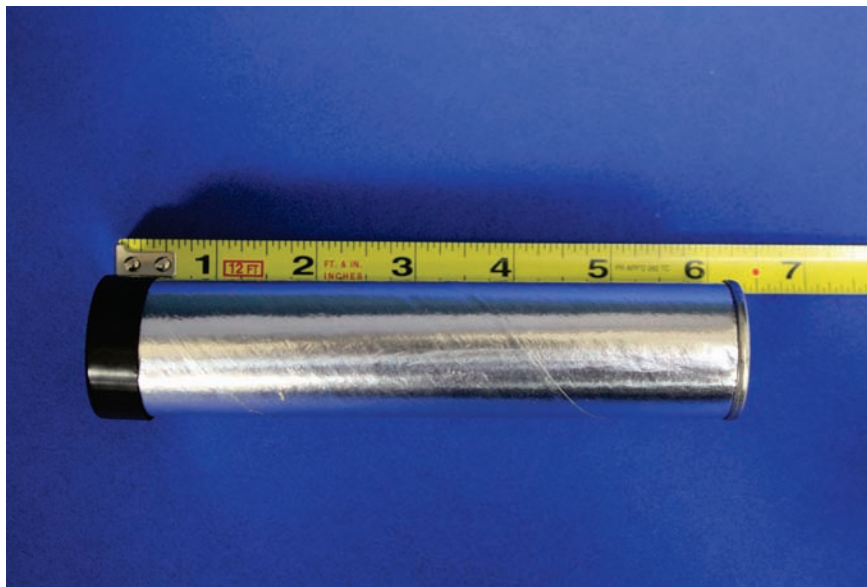
PICTURES:

NYE PACKAGING ITEM: CG-30Z – 75G

NYE PRODUCT SPECIFICATION:

| PROPERTY | REQUIREMENT |
|----------|--|
| COLOR | FIBER w/FOIL |
| SIZE | 6-1/16 H x 1-1/16 W = 15.4 cm H x 2.7 cm W |

PICTURES:



NYE PACKAGING ITEM: JAR-200Z – 500G**NYE PRODUCT SPECIFICATION:**

| PROPERTY | REQUIREMENT | INSPECTION |
|----------|---|------------|
| Color | White | Y |
| Size | ID: 3 1/8" W x 5" H = 7.94 cm W x 12.7 cm H OD: 3 3/8" W x 5 1/8" H = 8.57 cm W x 13.02 cm H | Y |

PICTURES:

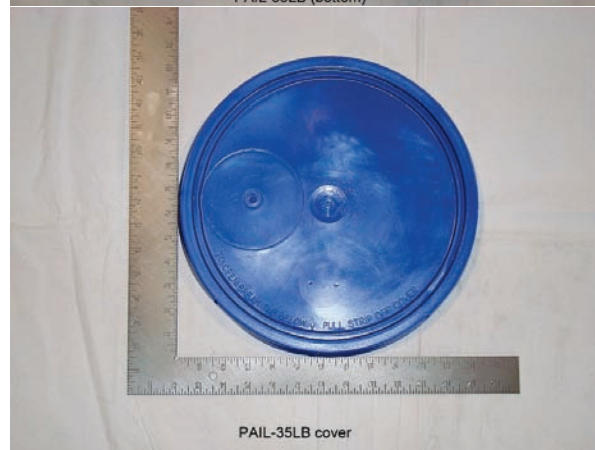
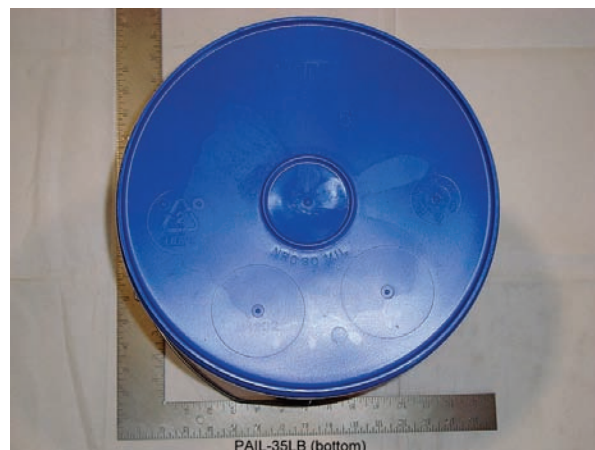
NYE PACKAGING ITEM: PAIL-1GAL-GR – 7LB**NYE PRODUCT SPECIFICATION:**

| PROPERTY | REQUIREMENT | INSPECTION |
|----------|--|------------|
| Color | Blue | Y |
| Size | ID: 6.5" W x 7.5" H = 16.51 cm W x 19.05 cm H OD: 7.25" W x 8.5" H = 18.415 cm W x 21.59 cm H | Y |

PICTURES:

NYE PACKAGING ITEM: PAIL-35LB**NYE PRODUCT SPECIFICATION:**

| PROPERTY | REQUIREMENT | INSPECTION |
|----------|--|------------|
| COLOR | BLUE | Y |
| SIZE | ID : 11.25" W x 13" H = 28.575 cm W x 33.02 cm H OD : 12" W x 13.75" H = 30.48 cm W x 34.925 cm H | Y |
| SHAPE | ROUND | |

PICTURES:

NYE PACKAGING ITEM: DRUM-400LB**NYE PRODUCT SPECIFICATION:**

| PROPERTY | REQUIREMENT | INSPECTION |
|----------|---|------------|
| Color | BLUE | Y |
| Size | ID : 22.5" W x 33.75" H = 57.15 cm W x 85.725 cm H OD : 23.75" W x 35" H = 60.325 cm W x 88.9 cm H | Y |

PICTURES:

APPENDIX 3

Application Methods (non-comprehensive and subject to change)

The availability of application equipment is constantly evolving. The examples shown in this appendix are provided for reference only; please contact the manufacturer for recommendations and current availability.



HPD™



DispensGun®

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

Key

- Recommended
- ▲ Satisfactory
- X Do not use

| Fluids | MODELS | |
|---------------------|--------|-----|
| | DG | HPD |
| Anaerobics | ▲ | ▲ |
| Coatings | ● | ● |
| Cyanoacrylates | X | X |
| Gel Cyanoacrylates | ▲ | ▲ |
| White Glues | ● | ● |
| Epoxies | ● | ● |
| Inks | X | ● |
| Greases | ● | ● |
| Oils | X | ▲ |
| Sealants | ● | ● |
| Silicones | ● | ● |
| Solder/Braze Pastes | ● | ● |
| Solvents | X | X |
| UV Cure | ● | ● |

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

Dispensers



725-HL



740V-HL



752V-HL

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
 ● Recommended
 X Do not use

| Fluids | MODELS | | |
|-----------------|---------|---------|--------|
| | 752V-HL | 740V-HL | 725-HL |
| Anaerobics | ● | X | X |
| Oils | ● | ● | ● |
| Cyanoacrylates | ● | X | X |
| White Glues | X | ● | ● |
| Greases | X | ● | ● |
| Braze Pastes | X | ● | ● |
| Paste Fluxes | X | ● | ● |
| Solvents | ● | ● | X |
| Vinyl Adhesives | X | ● | ● |

7020888 (725-HL) High-flow Piston Valve with Hand Lever

Wetted valve parts are UHMW polyethylene and hard-coat anodized aluminum. Includes #7021499 fluid inlet fitting, (2) #7018554 nozzles, #7016948 tip adapter and (6) #7018051 tapered tips. Order tank and tubing separately.

7021209 (740V-HL) Needle Valve with Hand Lever

7021205 (740SYS-1 system)

Wetted valve parts are PTFE, stainless steel and hard-coat anodized aluminum with 1.0 liter tank.

7021206 (740SYS-4 system)

Identical to the 740SYS-1 except supplied with a 5.0 liter pressure tank.

7021415 (752V-HL) Diaphragm Valve with Hand Lever

7021408 (752SYS-1 system)

Wetted valve parts are UHMW polyethylene. Accepts one pound bottles of cyanoacrylates, anaerobics and other low viscosity fluids. Supplied with a 1.0 liter tank.

7021409 (752SYS-4 system)

Identical to the 752SYS-1 except supplied with a 5.0 liter pressure tank.

DISPENSING COMPONENTS

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

| Part # | Description | |
|--|---|----------------|
| 7018555 | 63.5 mm x 3.1 mm opening (2 1/2" long x 1/8") | |
| 7018557 | 63.5 mm x 1.6 mm opening (2 1/2" long x 1/16") | |
| Metal nozzles 38 mm (1 1/2") long with 1/4 NPT to fit 725-HL valves | | |
| Part # | Gauge | ID |
| 7014850 | 7 | 3.8 mm (.150") |
| 7014851 | 8 | 3.4 mm (.135") |
| 7014848 | 10 | 2.7 mm (.106") |
| 7014842 | 12 | 2.2 mm (.085") |
| 7014844 | 14 | 1.6 mm (.063") |
| 7014846 | 16 | 1.2 mm (.047") |

Performus™ III & IV Dispensers

For applications that require a timed shot and vacuum control.

The Performus III features a 0-7 bar (0-100 psi) pressure regulator that handles all fluids.

The Performus IV has a 0-1 bar (0-15 psi) regulator that provides greater control when dispensing thin fluids.



Nordson EFD's Performus dispensers increase throughput, improve yields, and reduce production costs through controlled application of adhesives, lubricants and other assembly fluids.

Eight different dispenser configurations provide a cost-effective way to select the exact features needed to improve your specific fluid application process.

Features

- Choice of pressure regulators
- Digital timer
- Timed or steady operation
- Vacuum control keeps thin fluids from dripping
- Digital time/pressure display
- Electric foot pedal

Benefits

- Consistent dots and fills
- Neat beads
- No guesswork or fluid waste
- Less operator fatigue
- Compact design saves space



Performus Dispensers

III

IV

| | | | |
|-------------------------|---------------------|---|---|
| Dispense Time Display | Digital | ✓ | ✓ |
| Air Pressure Display | Analog | | |
| | Digital | ✓ | ✓ |
| Vacuum Display | Digital | | |
| Adjustability | Dispense time | ✓ | ✓ |
| | Air pressure | ✓ | ✓ |
| | Vacuum | ✓ | ✓ |
| Modes of Operation | Steady | ✓ | ✓ |
| | Timed | ✓ | ✓ |
| | Teach | | |
| Time Range | 0-99.9 seconds | ✓ | ✓ |
| Air Pressure Range | 0-100 psi (0-7 bar) | ✓ | |
| | (0-15 psi (0-1 bar) | | ✓ |
| Input/Output Connection | 5-24 VDC signal | | |
| Universal Voltage | (100-220/240 volts) | ✓ | ✓ |
| | | | |
| Warranty | 1 year | | |
| | 2 years | ✓ | ✓ |



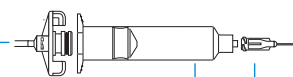
Performus III & IV
LED Display, Timer, Vacuum

Each dispenser kit includes:

(1) adapter assembly

(2) boxes of syringe barrels and pistons (same size)

(2) boxes of dispense tips



Specifications

| | |
|--------------------------------|---|
| Cabinet Dimensions: | 183 mm x 86 mm x 51 mm (7.22" W x 3.38" D x 2" H) |
| Weight: | 1 Kg (2.2 Lb) |
| Input AC (to power supply): | Universal Multi Voltage 100-240 VAC ~ 50/60 Hz |
| Output DC (from power supply): | 24 VDC – 0.83 Amp maximum |
| Power Requirements: | 24 VDC – 1.04 Amp maximum |
| DC Input Power Required: | 8W-20W |
| Internal Voltage: | 24 VDC |
| Footswitch: | |
| Voltage: | 24 VDC |
| Current: | 20mA |
| Cycle Initiate: | Foot Pedal, Finger Switch |
| Maximum Cycle Rate: | 600 cycles per minute |
| Air Input Requirements: | 100 psi (7 bar) maximum |
| Air Output: | 0-100 psi (0-7 bar) Performus III 0-15 psi (0-1 bar) Performus IV dependent on user setting |
| Ambient Operating Conditions: | |
| Temperature: | 5°C to 45°C (41°F-113°F) |
| Humidity: | 85% RH at 30°C (86°F) non-condensing |
| Height above sea level: | 2000 meters maximum (6562 feet) |
| Approvals: | CE, CSA, RoHS, WEEE & China RoHS Compliant |

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Piston valve systems for precise deposits of viscous fluids.

brazing pastes
epoxies
grease
paste fluxes
RTV/sealants
solder resists

EFD[®]
A NORDSON COMPANY



Electronic pdf files of EFD manuals are also available at www.efd-inc.com/manuals.html

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

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

The piston design provides a slight snuff-back at the end of the dispense cycle for positive fluid cutoff. These pneumatically operated valves are ruggedly constructed and feature a unique UHMW* polymer diaphragm that isolates the wetted components from the actuator. The UHMW* sealing head provides long wear.

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

*Ultra High Molecular Weight polyethylene



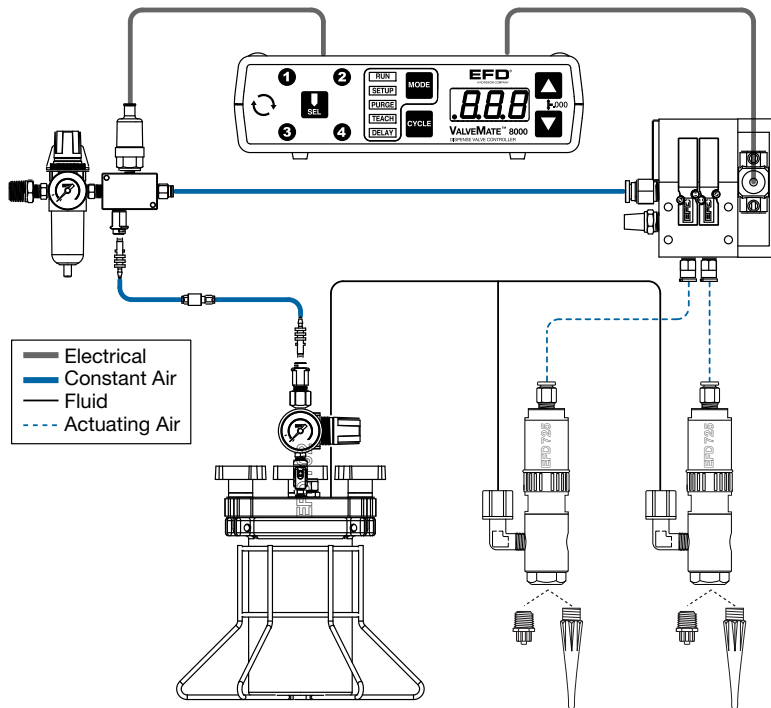
Features

- Positive shutoff
- **End-of-cycle snuff-back**
- Diaphragm life exceeds 50 million cycles
- Excellent chemical resistance
- Cycle rate exceeds 400/minute
- Low-maintenance design

Piston valve systems

The complete system includes the 725D Series valve, ValveMate™ 8000 controller, the fluid reservoir and dispense tip.

Expert technical assistance and high quality standards ensure productive, trouble-free performance. EFD offers a full line of reliable dispensing systems to meet your specific application requirements.



725D Series Valves

The 725D Series valves are used with ValveMate 8000 controllers or an EFD Ultra® TT automation system for precise, repeatable outputs. Piston action provides slight material pullback at the end of the dispense cycle for a clean fluid cutoff. Valves may be mounted in any position.

725DA-SS (stroke adjustment)

Size: 152.4 mm x 29.5 mm diameter
(6.00" x 1.16")

Weight: 326 grams (11.5 oz)

725D-SS (fixed stroke-travel)

Size: 127 mm x 28.4 mm diameter
(5.00" x 1.12")

Weight: 279 grams (9.85 oz)

Actuating air pressure required: 70 psi (4.8 bar)

Maximum fluid pressure: 100 psi (6.9 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

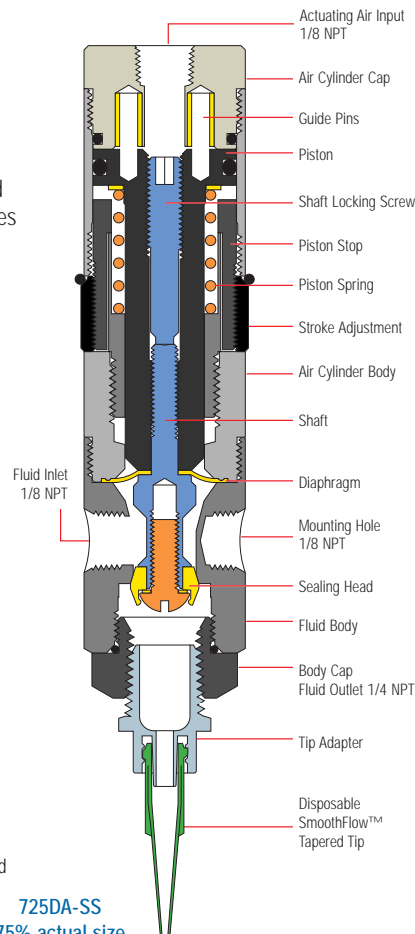
Air cylinder body: Hard-coated aluminum

Fluid body: Type 303 stainless steel

Piston: Hard-coated aluminum

Spring: Stainless steel

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



725DA-SS
75% actual size

All stainless steel parts are passivated.

*Ultra High Molecular Weight polyethylene

ValveMate 8000 Controller

Valve open time is the primary control of deposit size. The ValveMate controller puts push-button adjustment of valve open time where it needs to be — at the valve.

- Multi-valve control- up to (4) valves
- Partner to Programmable Logic Controller (PLC)
- Easy deposit size control
- Increased production output
- End user convenience
- On-the-fly adjustability
- Maximum machine efficiency

Optional: XYZ Dispensing System

The EFD Ultra TT xyz dispensing system incorporates all functions of the ValveMate. Compact 3-axis tabletop system offers consistent deposit repeatability.

Work area: 325 x 325 x 100 mm or 525 x 525 x 100 mm.

Fluid Reservoirs

EFD reservoirs are supplied with precision, constant-bleed regulators to ensure consistent fluid pressure to the valve.

Tank reservoirs are available in 1.0, 5.0 and 19.0 liter capacities. Cartridge sizes range from 2.5 to 32 ounces (75cc to 950cc).

Dispense Tips

Tip selection is critical to achieve optimum valve performance. 725D Series valves are packaged with an Ultra dispensing tip kit for maximum fluid control. The kit includes smooth-flow tapered tips in sizes from 14 to 25 gauge, precision stainless steel tips in sizes from 14 to 21 gauge, and tip caps.

For high flow rates, 1/4 NPT one-piece polyethylene nozzles are available.



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Consistent, precise 781S spray valve systems.

activators coatings grease inks liquid fluxes oils silicones solvents



"In manufacturing, reliability is everything. That's what we get from Nordson EFD valves. If all our equipment worked as well... our jobs would be easier."

—Ford Motor Company

The 781S Series Low Volume Low Pressure (LVLP) spray systems provide consistent coating of low to medium viscosity fluids.

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").

The combination of adjustable fluid flow, adjustable nozzle air and post-air cutoff provides excellent spray control.

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



Features

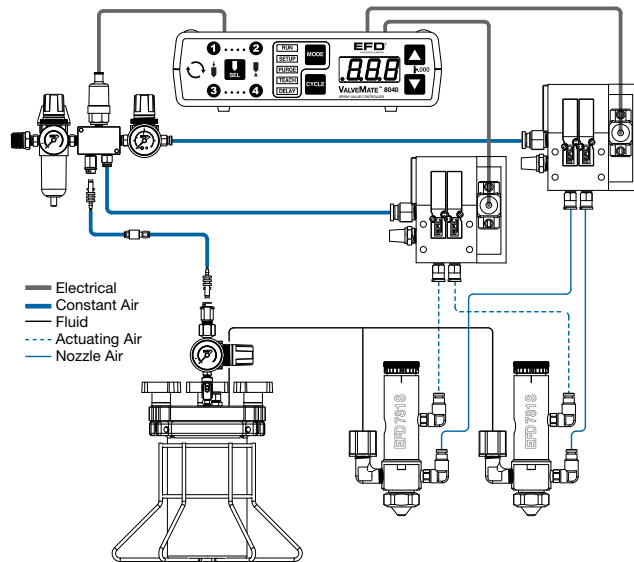
- High transfer efficiency
- No overspray, no mist, no bounce
- Adjustable fluid flow rate
- Extremely consistent area of coverage
- Cycle rate exceeds 400/minute
- Low-maintenance design
- Adjustable nozzle air

Electronic pdf files of Nordson EFD manuals are also available at www.nordsonefd.com

Spray valve systems



The complete system includes the 781S dispense valve, ValveMate 8040 controller, and the fluid reservoir. Expert technical assistance and high quality standards ensure productive, trouble-free performance. Nordson EFD offers a full line of reliable dispensing systems to meet your specific application requirements.



781S Series Valves

The 781S Series valves are used with ValveMate 8040 controllers for precise control of fluids without mist or overspray. Adjustable Low Volume Low Pressure (LVLP) nozzle air transfers fluid from the nozzle to the substrate at low velocity and high transfer efficiency.

Size: 104.6 mm x 26.9 mm diameter (4.12" x 1.06")

Weight: 405.3 g (14.2 oz) for 781S-SS model
235.3 g (8.2 oz) for 781S model

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

Maximum input fluid pressure: 300 psi (20.7 bar)

Fluid inlet thread: 1/8 NPT female

Mounting: (1) 1/4-28 UNF tapped hole or adjustable mounting block

Cycle rate: Exceeds 400 per minute

Air cylinder body: 781S-SS: Type 303 stainless steel
781S: Hard-coated aluminum

Fluid body: 781S-SS: Type 303 stainless steel
781S: Hard-coated aluminum

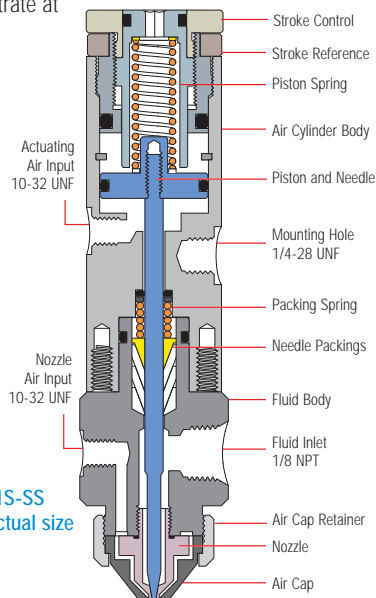
Air cap: Type 303 stainless steel

Piston: Type 303 stainless steel

Needle and nozzle: Type 303 stainless steel

Needle packings: Teflon®

All stainless steel parts are passivated.



ValveMate 8040 Controller

The ValveMate controls valve open time and nozzle pressure. Its compact size allows the controller to be mounted near the valve for easy setup and spray adjustment.

- Multi-valve control- up to (2) spray valves
- Partner to Programmable Logic Controller (PLC)
- Easy control for consistent coverage
- Precise control of nozzle air pressure
- End-of-cycle air delay prevents valve from clogging
- End user convenience
- Maximum machine efficiency

Automation: XYZ & XYZR Robot Dispensing Systems

Nordson EFD offers a wide selection of XYZ and XYZR robot systems that are fully compatible with ValveMate valve controller systems. Consistent, accurate, repeatable and complex dispensing applications can be easily performed with EFD robots, with working envelopes that range from 200 x 200 x 50mm to 510 x 510 x 100mm. Scara robot systems are also available for larger, heavier products or inline dispensing applications.

Fluid Reservoirs

EFD reservoirs are supplied with precision, constant-bleed regulators to ensure consistent fluid pressure to the valve.

Tank reservoirs are available in 1.0, 5.0 and 19.0 liter capacities. Cartridge sizes range from 2.5 to 32 ounces (75 cc to 950 cc).

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Spray Area Coverage

| Stainless steel model # | Aluminum model # | nozzle diameter mm | nozzle diameter inches | pattern | mm 25.4 | inches 1" | Nozzle distance from surface | | | | mm 152.4 | inches 6" |
|-------------------------|------------------|--------------------|------------------------|---------|---------|-----------|------------------------------|-----------|---------|-----------|----------|-----------|
| | | | | | | | mm 50.8 | inches 2" | mm 76.2 | inches 3" | | |
| 781S-SS | 781S | 1.1 | 0.046" | round | 6.3 | 0.25" | 12.7 | 0.50" | 19.0 | 0.75" | 38.1 | 1.50" |
| 781S-SS-28 | 781S-28 | 0.7 | 0.028" | round | 5.0 | 0.20" | 10.1 | 0.40" | 15.2 | 0.60" | 30.4 | 1.20" |
| 781S-SS-14 | 781S-14 | 0.3 | 0.014" | round | 4.3 | 0.17" | 8.6 | 0.34" | 12.7 | 0.50" | 25.4 | 1.00" |
| 781S-SS-WA | 781S-WA | 1.1 | 0.046" | round | 19.0 | 0.75" | 38.1 | 1.50" | 50.8 | 2.00" | n/a | |
| 781S-SS-46F | 781S-46F | 1.1 | 0.046" | fan | 25.4 | 1.00" | 38.1 | 1.50" | 50.8 | 2.00" | 82.6 | 3.25" |
| 781S-SS-28F | 781S-28F | 0.7 | 0.028" | fan | 10.1 | 0.40" | 20.3 | 0.80" | 30.4 | 1.20" | 60.9 | 2.40" |
| 781S-SS-14F | 781S-14F | 0.3 | 0.014" | fan | 8.6 | 0.34" | 17.2 | 0.68" | 25.4 | 1.00" | 50.8 | 2.00" |
| 781S-SS-WF | 781S-WF | 1.1 | 0.046" | fan | 38.1 | 1.50" | 63.5 | 2.50" | 82.6 | 3.25" | 165.1 | 6.50" |

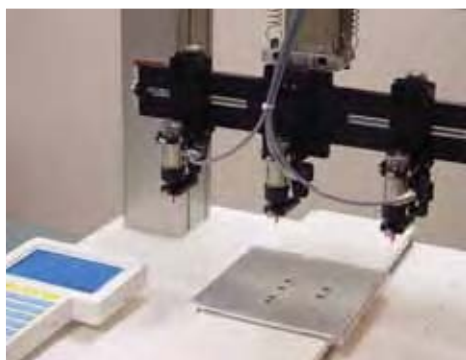
For tamper-resist model, specify part #781S-TR or #781S-SS-TR.



Tabletop Positioning Systems: XYZ & R



Increase productivity of precision dispensing applications without giving up valuable floor space.



Systems are available with one, two or three dispense valves for increased output.



Teaching Pendant
shown not actual size

Programming Interface

Each system incorporates innovative, user-friendly programming software and user interface. The teaching pendant has a large back-lit LCD with seven text lines to allow the operator easy viewing of program and point parameters. Windows™-based software is also available.

Multi-Axis Positioning Systems

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

The units are constructed of die cast aluminum bases with extruded aluminum precision slides. The controls are integrated into the machine's base, which includes a built-in PLC and internal power supply to actuate dispensing function.

The tabletop positioning systems are true three dimensional motion control systems, which allow easy programming of dots, stripes, arcs, compound arcs and patterns on different planes.

X/Y/Z and R Axes

The EFD multi-axis dispensing systems incorporate three working envelope sizes: 200mm x 200mm, 300mm x 320mm and 510mm x 510mm.

The units feature five-phase micro stepping motors and belt drives on the X and Y axes, while the Z axis utilizes a zero backlash precision ball screw. Position repeatability of +/- .0004 inches (0.01mm) per axis is achieved.

Applications

- Dam and fill
- Dots
- Gasketing
- Patterns
- Underfills

Fluids

- Adhesives
- Conformal coatings
- Cyanoacrylate
- Grease
- Paint
- Reagents
- Sealants
- Solder paste
- Solvents

Specifications of DR2200, DR2300 and DR2500 Series Positioning Systems

| MODEL | | DR2200 SERIES | DR2300 SERIES | DR2500 SERIES |
|-----------------------------|-------|--|-------------------------|-------------------------|
| Axis | | 3/4 | 3/4 | 3/4 |
| Moving Range | X/Y | 200mm x 200mm | 300mm x 320mm | 510mm x 510mm |
| | Z | 50mm | 100mm | 150mm |
| | R | NA/±360 | NA/±360 | NA/±360 |
| Portable Weight | Work | 7kg | 11kg | 11kg |
| | Tool | 3.5kg | 6kg | 6kg |
| Point-to-Point Speed Range | X/Y | 7~700mm/sec | 8~800mm/sec | 8~800mm/sec |
| | Z | 2.5~250mm/sec | 3.2~320mm/sec | 3.2~320mm/sec |
| | R | 6~600°/sec | 8~800°/sec | 8~800°/sec |
| Cont. Path Speed Range* | X/Y/Z | 0.1~500mm/sec | 0.1~800mm/sec | 0.1~800mm/sec |
| Maximum R Axis Inertia | | NA/65kg•cm ² | NA/90kg•cm ² | NA/90kg•cm ² |
| Repeatability | X/Y | ±0.01mm | ±0.01mm | ±0.01mm |
| | Z | ±0.01mm | ±0.01mm | ±0.01mm |
| | R | NA/±0.02° | NA/±0.02° | NA/±0.02° |
| Weight | | 18kg | 35kg | 42kg |
| Teaching Method(s) | | Remote teaching (JOG), MDI (Manual Data Input) teaching | | |
| Teaching System | | DR Points: Simple and Broad use teaching system | | |
| | | <ul style="list-style-type: none"> • Simple: Easy teaching only by registering position (point dispense, line dispense) • Broad-use: Programming the original I/O control, etc. for users by registering the Point job | | |
| Teaching Method(s) | | <ul style="list-style-type: none"> • Teaching by teaching pendant • Teaching by PC (off-line teaching) (optional) | | |
| Data Memory Capability | | Maximum 30,000 points with in 255 programs | | |
| Drive Method | | 5-phase stepping motor | | |
| Control Method | | Point-to-Point control, Continuous Path control | | |
| Interpolating Function | | 3 dimensional line and arc interpolation | | |
| External Interface | | RS232C 2ch (for PC 1ch, for teaching pendant 1ch), for external equipment 1ch (optional) | | |
| External Input/Output | | 16 points for input, 16 points for output | | |
| PLC Function | | 100 / 1,000 step programs | | |
| Power Supply | | AC90~132V VAC180~250V (single phase) | | |
| Consumption Current | | 200VA | | |
| Working Ambient Temperature | | 0~40° Celsius | | |
| Relative Humidity | | 20~95% (no condensation) | | |

Windows™ is a trademark of Microsoft.

* This may change by the driving conditions.

Notes:

CE certified models are available.

Tabletop systems are designed to accept the full range of EFD dispenser and valve systems.



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PICO™ Jet Dispensing Systems

Nordson EFD's new PICO non-contact dispensing systems combine high production speed with exceptional deposit accuracy and process control. By jetting droplets of fluid onto the product, the time-consuming need to move the valve to the substrate is eliminated. Fluid can be dispensed into difficult to access areas and onto uneven or other substrates where a dispense needle cannot contact the substrate.

Features

- Ideal for use on uneven substrates or hard-to-access areas
- Consistent shot size, with droplets starting at 0.002 μ l (2 nl) to flow rates up to 300 g/min (10 oz/min)
- Continuous operation at 150 cycles/second (H2)
- Compatible with a wide range of low to high viscosity fluids

Benefits

- Eliminates Z-axis movement and need for precise height positioning, for significantly higher dispensing speeds
- Outstanding process control for highest dot-to-dot consistency and best process capability
- Reduces downtime and scrap by eliminating risk of substrate-nozzle collision
- Fast change-over without need for any process readjustments
- Integrated heater in the valves, a choice of different nozzle orifice sizes and precision needles allow optimizing the dispensing process for a wide range of fluids



Specifications

specifications

| | Low Viscosity Valve (LV) | Medium Viscosity Valve (MV) | High Viscosity Valve (HV / PV) |
|---|--|--|--|
| Dimensions | 72 X 14 X 60 mm / 2.8 X 0.6 X 2.4" (without needle adapter) | | |
| Weight Cordset | 290 grams / 10 oz | | |
| Compatible Fluids | Examples: various oils, alcohol, octane, and organic solutions | Examples: oils and greases, varnishes and colors, hydrous solutions, organic solvents, adhesives and adhesive components, liquid polymers and polymeric solutions, etc | |
| Viscosity Range | 50-1,000 mPas / 50-1,000 cps (thixotropic) | 50-200,000 mPas / 50-200,000 cps (thixotropic) | 1,000-500,000 mPas / 1,000-500,000 cps (thixotropic) |
| Acceptable Fillers in Fluid | None | Medium quartz powder, iron oxide, and aluminum oxide | |
| Materials in Contact with the Fluid | Viton, Perfluoroelastomer, stainless steel 303 / 1.4305 | | |
| Min. Cycle Time (open and closed) | 0.010 ms | 0.010 ms | 0.010 ms |
| Min. Cycle Time at Full Stroke (open & close) | 0.250 ms | 0.250 ms | 0.500 ms |
| Max. Open Time | Indefinitely (permanently open) | | |
| Min. Pause Time Between Cycles | 0.350 ms | 0.010 ms | 0.010 ms |
| Max. Cycle Frequency | 1000 per second (150 per second in continuous operation) | | |
| Metering Accuracy | Approx. 2% (with constant pressure and temperature) | | |
| Max. Operating Pressure | 100 bar / 1450 psi | 100 bar / 1450 psi | 60 bar / 870 psi |
| Throughput | Depending on fluid | At least 300 g per minute with 1,000 mPas and 60 bar / 10.5 oz per minute with 1,000 cps and 870 psi | |
| Ambient Operating Temperature | Up to 45°C / 113°F | | |
| Fluid Heating Range | Up to 100°C / 212°F with optional heater | Up to 100°C / 212°F | Up to 100°C / 212°F |
| Nozzle Orifice Diameter (standard, other diameters available upon request) | 0.150 and 0.300 mm / 0.006" and 0.012" | 0.300 mm / 0.012" | 0.400 mm / 0.016" |

PICO™ Jet Dispensing Systems



PICO DCON Driver



PICO Jet Valve



PICO Valve Controller

Capabilities

- Non-contact jetting of droplets
- Non-contact dispensing of lines
- Covering areas by jet dispensing of droplet arrays
- Non-contact jetting onto three-dimensional substrates
- Optional precision needle adapter allows contact dispensing of dots and beads with excellent consistency and highest positioning precision



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