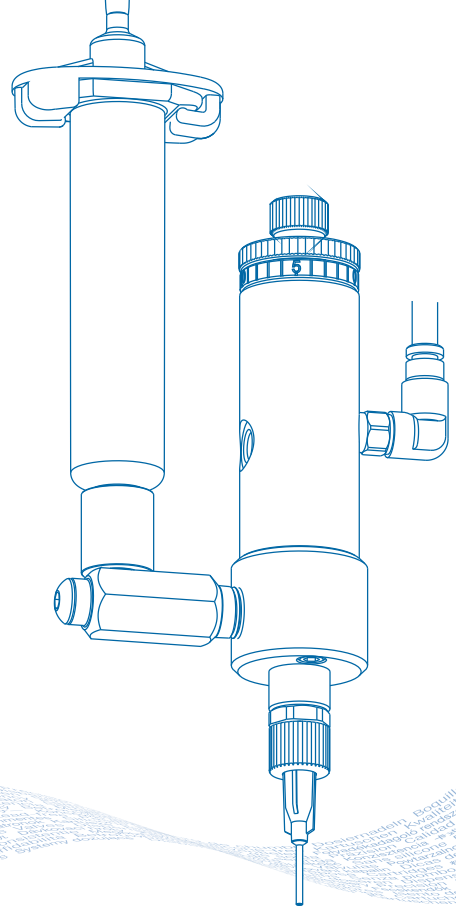
741MD-SS Series Dispense Valve

INSTALLATION GUIDE

EFD®
A NORDSON COMPANY



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

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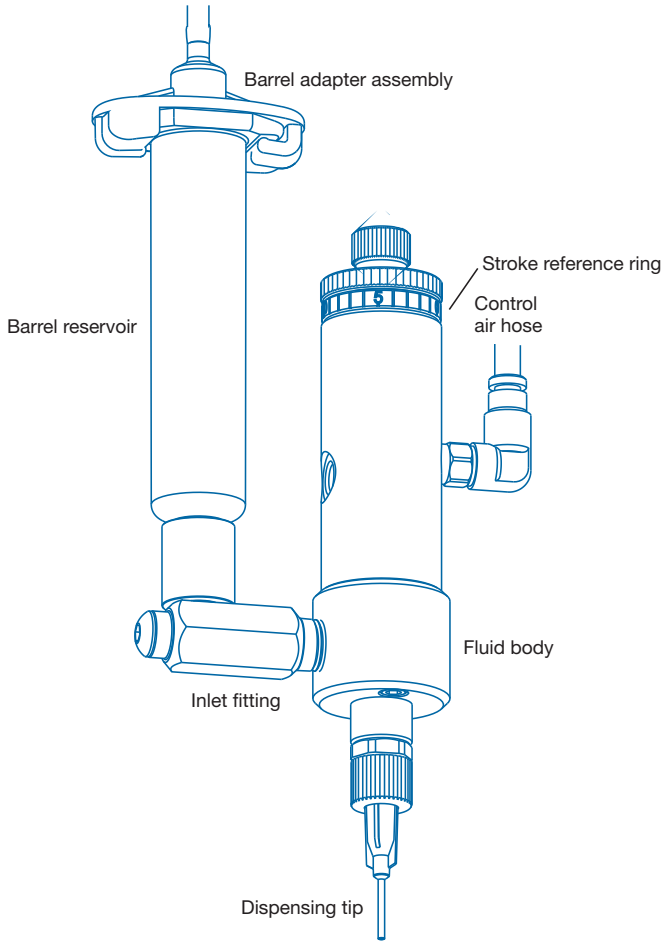
Introduction

The 741MD-SS Series is simple to use and will operate many millions of cycles without maintenance.

The 741MD-SS is a pneumatically operated, adjustable needle valve designed to apply precise microdeposits of low to high viscosity fluids down to fractions of a microliter. It is ideal for automated assembly processes that require small dispensing tips (from 22 to 33 gauge). The 741MD-SS provides exceptional control and the absolute minimum dead fluid volume.



Installation

Prior to installing this valve, please read the associated reservoir and valve controller operating instructions to become familiar with the operation of all components of the dispensing system.

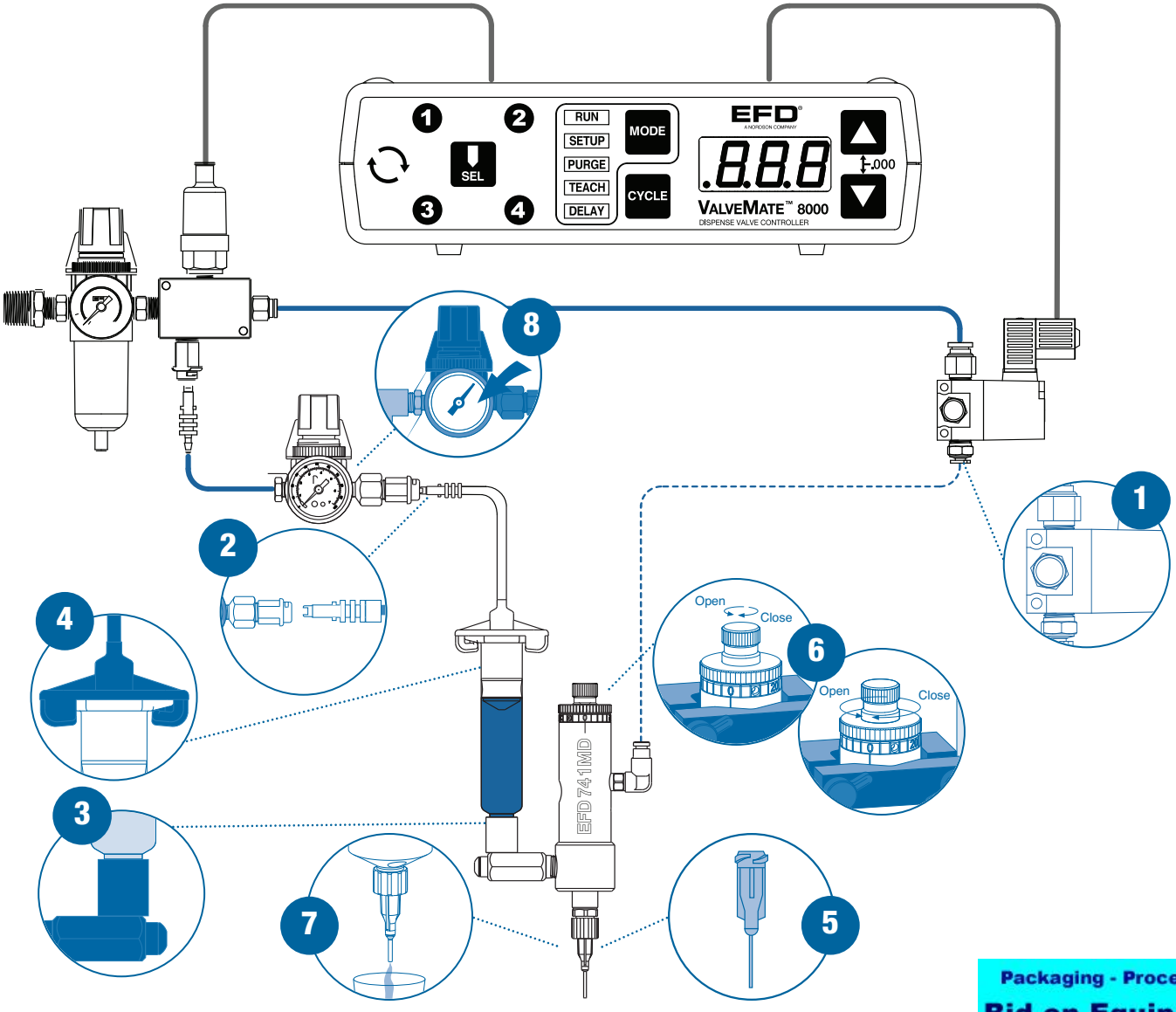
1. Connect valve control air hose to ValveMate™ 8000 (solenoid pack) used to control valve open time.
2. Connect the white male quick-connect on the flexible air line to the white female quick-connect at the air pressure regulator.
3. Install the barrel reservoir on the fluid inlet fitting (installed for use with Ultra® barrel reservoirs). For low viscosity fluids, fill the reservoir after installing it on the fluid-inlet fitting. High viscosity materials can be loaded into the reservoir before installing on the inlet fitting.

Note: Fill barrels no more than 2/3 full. Always use a SmoothFlow™ piston when dispensing medium to high viscosity materials (see setup illustration).

4. Attach the barrel adapter head to the barrel reservoir using air interconnect coupler to connect the barrel adapter assembly to the flexible air line.
5. Install appropriate size EFD SafetyLok™ dispensing tip on the tip adapter. Tighten the tip retaining nut fully to position the needle hub against the shoulder of the tip adapter.
6. Open stroke adjustment knob to desired position (1/2 turn open is the recommended starting point).

   Refer to back page for instructions on calibrating the needle stroke.
7. Open the valve with an air pulse long enough to fill the valve and start fluid flow. Test the dispensed amount with a normal time setting.
8. Set reservoir pressure to low for thin fluids and higher for thick fluids. Use the in-line air shut-off valve to pressurize or depressurize barrel reservoir.

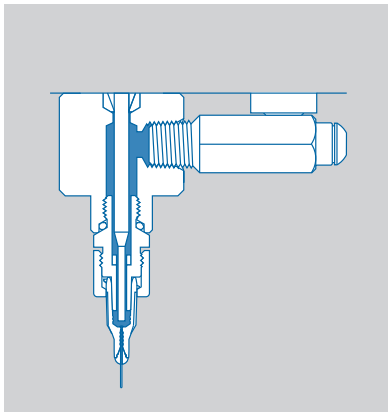
Important Note: Set desired deposit size by adjusting valve open time. Refer to valve controller operating manual.



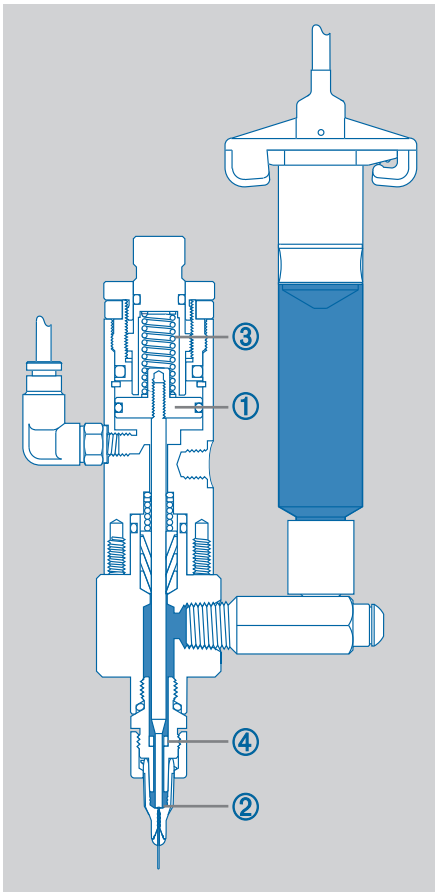
How the Valve Operates

Input air pressure at 70 psi (4.8 bar) retracts the piston and needle from the needle seat in the dispensing tip ①, permitting fluid flow through the dispensing tip ②. Once the cycle is complete, air pressure is exhausted, causing the piston spring ③ to return the needle back to its position in the dispensing tip, stopping fluid flow. When the dispensing tip is removed, the needle seats into a secondary Teflon® seat ④, stopping fluid flow during tip replacement.

The amount of fluid dispensed will depend on the time the valve is open, fluid reservoir pressure, dispensing tip size, needle stroke and fluid viscosity.



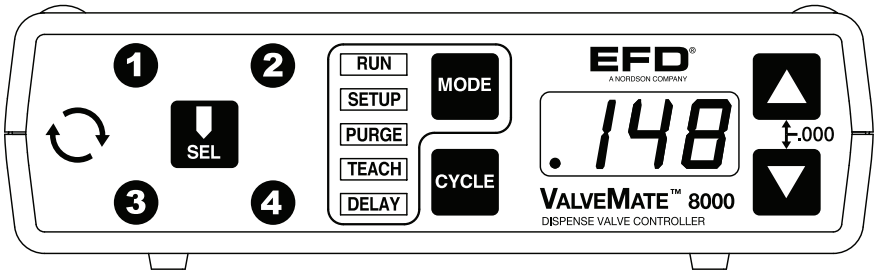
open



closed

ValveMate Concept

The ValveMate 8000 provides easy adjustment of valve output for maximum end-user convenience and efficiency. Valve open time is the primary control of deposit. The 8000 puts push-button adjustment of valve open time where it needs to be—at the valve.



The ValeMate 8000 features micro-processor circuity for extremely precise control of deposit size. Feed lines can be purged, initial deposit sizes set, and adjustments made quickly and easily at the dispensing station, without stopping the production line.

Note: The EFD Ultra® TT 325 and 525 XYZ automated dispensing systems have integrated ValveMate controllers for operating all EFD dispense valves.

Important Note: Order your 1, 2, 3 or 4 solenoid manifold block assembly separately. Consult EFD for recommendations.

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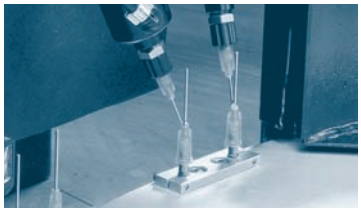

Calibration Feature

The stroke control reference ring of each 741MD-SS valve is factory calibrated to the zero position. Slight internal variations in dispensing tips may require the stroke control to be recalibrated when tips are changed. To do so:

1. Make a note of the current stroke setting number.
2. Turn the calibration knob (inner) counterclockwise one full turn.
3. Install the new dispensing tip and ensure that the retaining nut is tightened fully.
4. Turn the stroke adjustment knob (outer) clockwise until it stops at the zero position.
5. Turn the calibration knob clockwise until it stops. The stroke adjustment is now calibrated to zero.
6. Reset stroke to the required position noted in step 1.

In the event that the stroke reference ring must be repositioned or reset to the zero mark, use the following procedure:

A. Remove the dispensing tip, if installed.

B. Turn the small knob counterclockwise one full turn.

C. Turn the large knob clockwise until it stops.

If the zero on the reference ring does not line up with the index mark, continue with the following steps:

D. Loosen the small set-screw located on the reference ring.

E. Rotate reference ring until it aligns with the reference line on the air cylinder body.

F. Tighten the small set-screw to lock the reference ring into position.

G. Install a dispensing tip and follow calibration procedure steps 3 to 5.

For consistent dispense valve operation and easy adjustment of valve output, EFD recommends using the ValveMate 8000 controller on all automatic, semi-automatic and benchtop applications.

The EFD Ultra TT Series positioning systems incorporate dispensing control into the main system.

Contact the EFD Dispense Valve Systems Group for details.

Specifications

General

Size: 127.5 mm length x 26.9 mm diameter (5.02" x 1.06")

Weight: 255 grams (9.0 oz)

Fluid body: Type 303 stainless steel

Air cylinder body: Hard-coated aluminum

Piston: Type 303 stainless steel

Needle: Type 303 stainless steel

Fluid inlet thread: 1/8 NPT female

Fluid outlet: Luer taper with retaining nut

Air pressure required: 70 psi (4.8 bar)

Maximum fluid pressure: 100 psi (6.9 bar)

Maximum operating temperature: 43ºC (110ºF)

Mounting: 1/4-28 UNF tapped hole

Tip adapter/needle seat: Type 303 stainless steel

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