

784S-SS Aseptic MicroSpray™ Valve

Installation Guide

Introduction

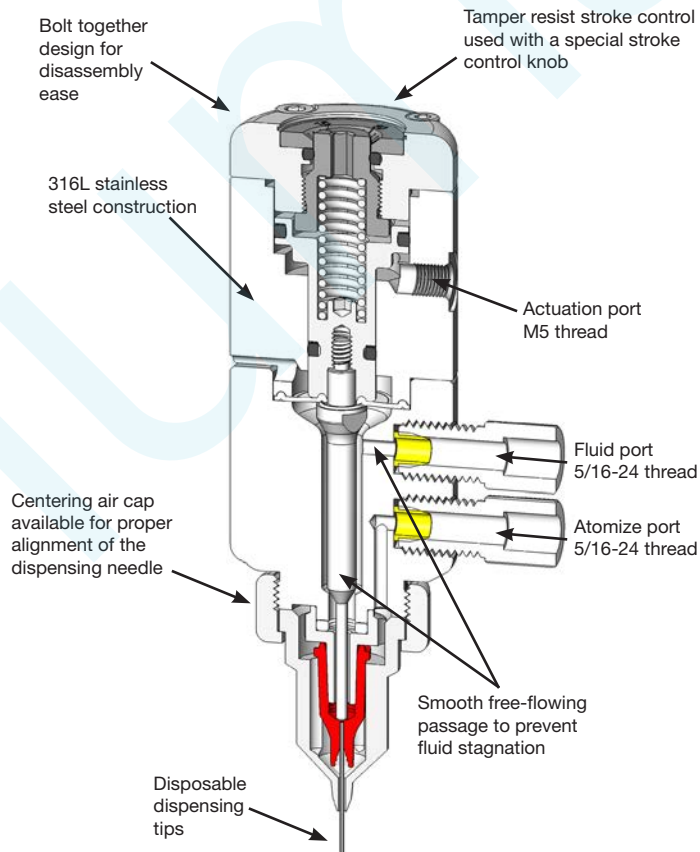
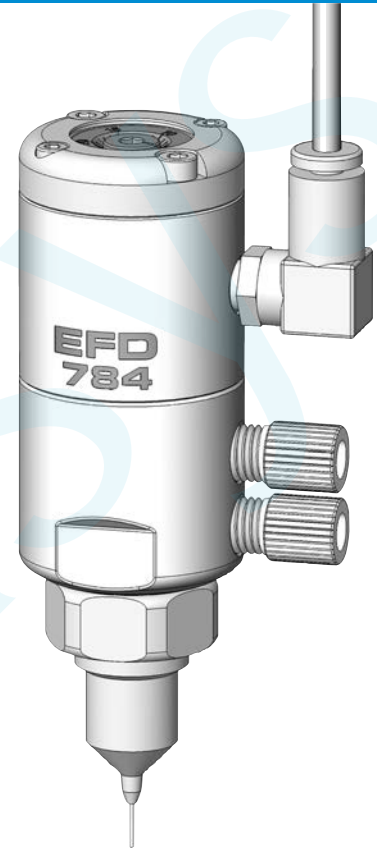
The 784S-SS Aseptic Spray Valve is designed to conform to biopharmaceutical regulations for sterile fluid applications. The 784S-SS wetted components are constructed of 316L stainless steel and PTFE with a smooth aseptic fluid path which is suitable for CIP (clean in place) and SIP (sterilize in place) processes.

The 784S-SS valve is simple to use and will operate many millions of cycles without maintenance. Low Volume Low Pressure (LVLV) nozzle air combined with small disposable dispensing tips (from 23 to 33 ga) for flow control results in high transfer efficiency onto surfaces without overspray or airborne mist.

The 784S-SS is a pneumatically operated, adjustable needle valve designed to apply microspray deposits from 0.130" to 0.75" diameters of low to medium viscosity fluids. Also available with a fan air cap for wider area of coverage.

The 784S-SS provides exceptional control and the absolute minimum dead volume. Each spray valve is shipped with a spray tip kit, fluid inlet fitting and 5-foot actuating and nozzle air hose installed.

Valves are available with or without a centering air cap. The air cap ensures proper alignment of the dispensing needle in critical spray applications.

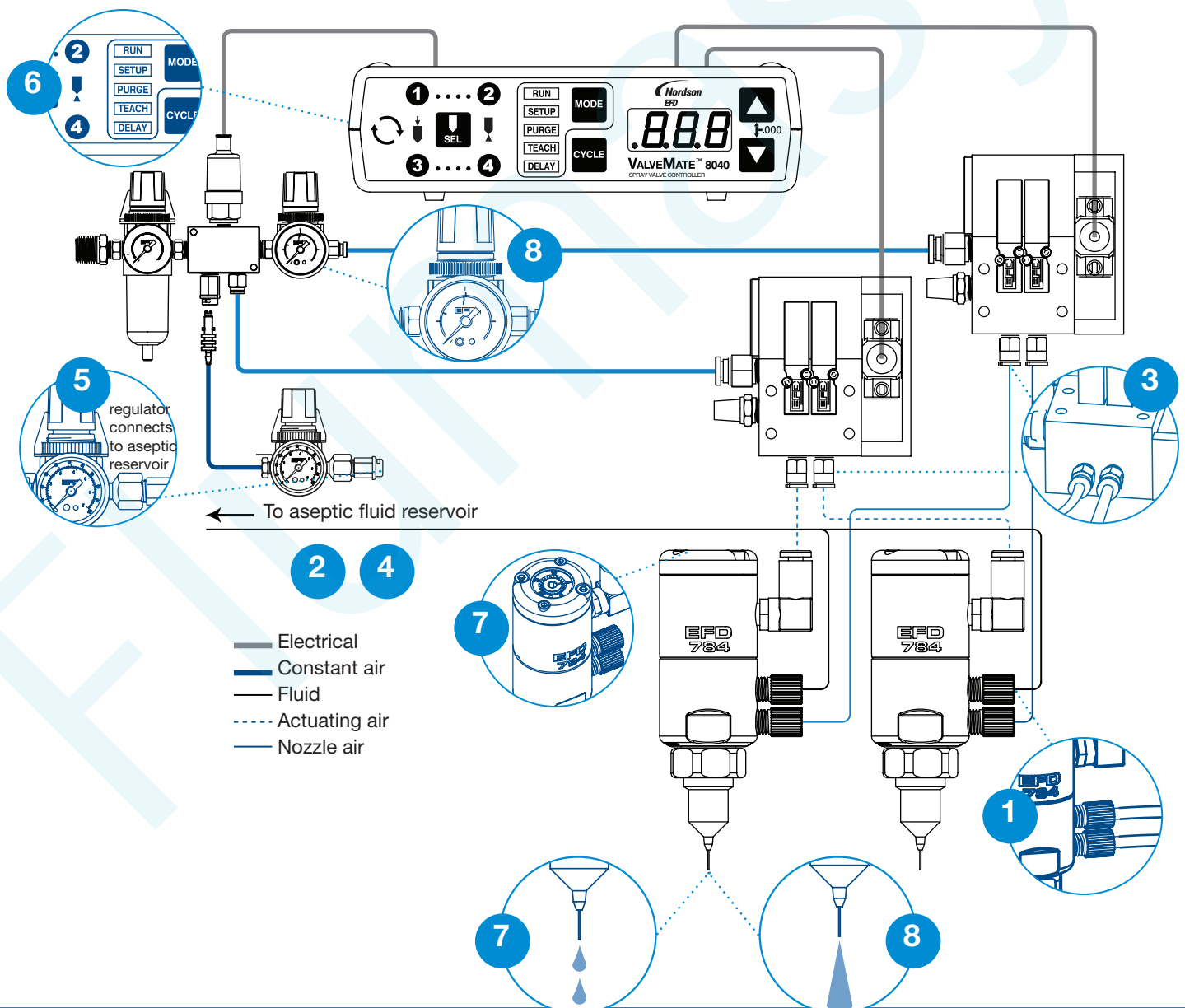


Installation

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

1. Connect the fluid supply line from aseptic reservoir to valve.
2. Connect the fluid supply line to the aseptic reservoir. (**NOTE:** Not available from EFD.)
3. Connect the control air hose and the nozzle air hose to corresponding outputs on solenoid block.
4. Fill aseptic reservoir with fluid.
5. Set reservoir pressure to low for thin fluids and higher for thick fluids.
6. Using the Mode **MODE** button on the ValveMate controller, place the controller in the purge **PURGE** mode. In **PURGE** **PURGE** mode only, channels **1** and **2** can be selected **SEL** independently without nozzle air pressure.
7. Using the needle stroke control knob on the 784S-SS valve, set the fluid flow rate to one or two drops per second. Insert 3 mm hex wrench into keyed inner stroke control knob. Turn counterclockwise to open. Check
8. Set the nozzle air pressure on the nozzle to 0.7 bar (10 psi) and actuate the controller. The valve will produce a fine spray. To change fluid flow, use the needle stroke control knob and / or reservoir pressure. To change nozzle air, use the nozzle air pressure regulator. Higher pressures will provide finer spray.

NOTE: The area of spray coverage is determined by the distance between the spray valve nozzle/tip and the work surface.



How the Valve Operates

Figure 1. Input air pressure at 4.8 bar (70 psi) min. — 6.2 bar (90 psi) max. — retracts the piston and needle from the needle seat in the dispensing tip, permitting fluid flow through the dispensing tip. Use small diameter tips for low viscosity fluids and low volume spray. Use larger diameter tips (23 gauge maximum size) for thicker fluids and higher volume spray.

Figure 2. At the same time, nozzle air is turned on and flows from an annulus around the dispensing tip. This adjustable nozzle air creates a pressure drop around the dispensing tip, causing liquid to atomize in fine micro deposits.

The amount sprayed is controlled by the valve opening time, reservoir pressure, and needle stroke. Area of coverage is determined by dispensing tip selection and distance between the tip and work surface. When the dispensing tip is removed, the needle seats into a secondary seat, stopping fluid flow during tip replacement.

Figure 3. Replacing the Dispensing Tip

- 1 Turn the retaining nut counterclockwise and remove nut and air cap.
- 2 Remove dispensing tip if installed from tip adapter.
- 3 Reinstall dispensing tip positioning the hub against the shoulder of the tip adapter.
- 4 Reinstall air cap and tighten the retaining nut.

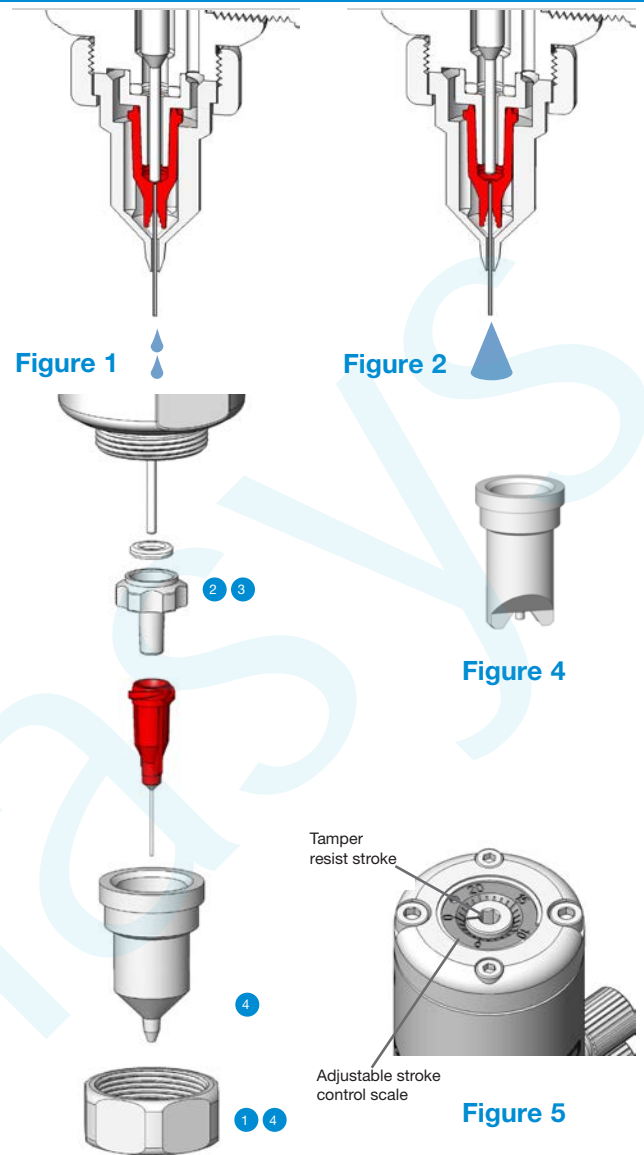
NOTE: See back page for recommended tip sizes / area of coverage detail.

Figure 4. 784S-SS (#7012988) is equipped with a round air cap (use 1/2" or 1/4" long dispensing tips with round air cap) 784S-SS-F (#7013000) is equipped with a fan air cap. (Use only 1/4" long dispensing tips with fan air cap.)

Figure 5. Calibration Feature:

The stroke control reference ring of each 784S-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. Insert 3 mm hex key (provided) into inner stroke knob.
3. Turn the hex keyed stroke knob (inner) counterclockwise one full turn.
4. Install the new dispensing tip and ensure that the retaining nut is tightened fully.
5. Turn the stroke adjustment knob clockwise until it stops.
6. Turn the numbered calibration ring until "0" aligns with the stroke knob index mark. The stroke adjustment is now calibrated to zero.
7. Reset stroke to the required position noted in step 1.



Specifications

Size: 31.5 mm (1.24") diameter x 96.27 mm (3.79") long

Weight: 430.30 grams (15.20 ounces)

Fluid body: Type 316L stainless steel

Air cylinder body: Type 316L stainless steel

Piston: Type 316L stainless steel

Needle: Type 316L stainless steel

Air cap: Type 316L stainless steel

Fluid inlet thread: 5/16 - 24 UNF tapped hole

Diaphragm: PTFE

Disposable tips: Polypropylene hub / 304SS shaft

Maximum fluid pressure: 1.7 bar (25 psi)

Maximum operating temperature: Autoclaving
260° C (500° F)

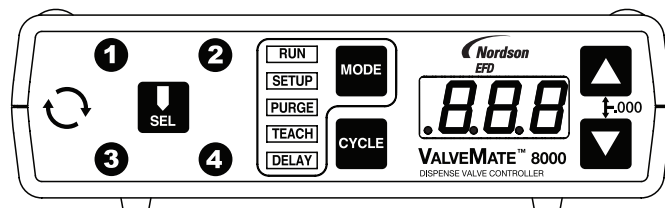
Operating frequency: Exceeds 400 cycles / minute

NOTE: For improved surface finish, all 316L stainless steel valve parts are electro-polished and passivated

ValveMate Concept

The ValveMate 8040 provides easy adjustment of spray valve output for maximum end-user convenience and efficiency. Valve open time is the primary control of deposit size. The ValveMate 8040 puts adjustment of valve open time where it needs to be – near the spray valve.

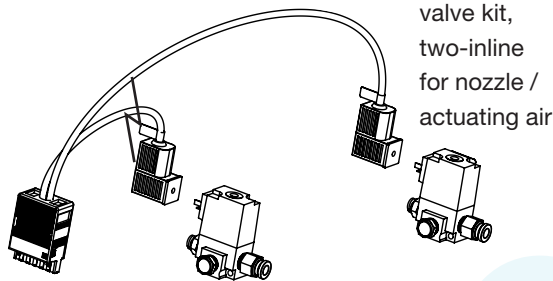
External solenoids, combined with a 0-30 psi nozzle air pressure regulator, provide Low Volume Low Pressure (LVLV) air to the nozzle for high transfer efficiency.



Important Note: Order your single or dual valve solenoid assemblies separately. Consult EFD for recommendations.

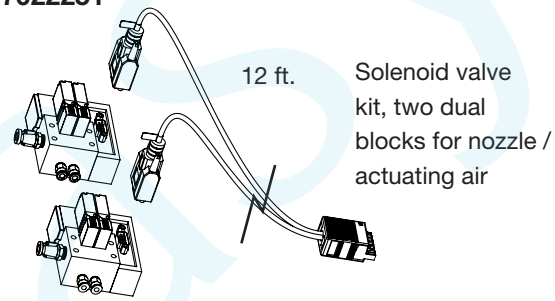
The primary control of deposit size is the valve open time.

7022250



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

7022251



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

Area of Coverage Chart

		Distance From Surface		
		0.5"	1"	1.5"
Tip	Gauge	Round Pattern – 1/4" length tip		
7018301	23	0.260	0.320	0.375
7018332	25	0.240	0.280	0.350
7018394	27	0.200	0.270	0.300
7018423	30	0.190	0.240	0.275
7018461	32	0.180	0.220	0.260
7018477	33 chamfered	0.130	0.180	0.240
Tip	Gauge	Round Pattern – 1/2" length tip		
7018300	23	0.280	0.430	0.600
7018331	25	0.240	0.330	0.400
7018393	27	0.220	0.300	0.375
7018422	30	0.200	0.280	0.350

Area of Coverage Chart

		Distance From Surface		
		0.5"	1"	1.5"
Tip	Gauge	Fan Pattern – 1/4" length tip		
7018301	23	1.30	1.50	1.600
7018332	25	0.900	1.200	1.450
7018394	27	0.800	1.100	1.300
7018423	30	0.450	0.600	0.900
7018461	32	0.400	0.570	0.800
7018476	33 chamfered	0.370	0.550	0.750

NOTE: Above are approximate spray pattern areas of coverage. Results may vary based on fluid type, nozzle air, stroke setting, and reservoir pressure selected.

Nordson
EFD

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