

# Stainless Steel Single and Dual Circulation Kits

## Introduction

The single and dual high-pressure circulation kits allow you to vary and control the circulation rate of coating material through a fluid circuit. The kits are available in stainless steel.

Use the single circulation kit for systems with one high-pressure fluid circuit and the dual circulation kit for systems with two high-pressure fluid circuits.

## Circulation Kit Assembly

### Tools and Material Required

The following tools and materials are needed to assemble and install the kit:

- large and small adjustable wrenches
- vice grip or channel-lock pliers
- pipe thread adhesive/sealant part 900481 (Loctite High Temp SS567) or equivalent

### Assembly

See Figure 1.

1. Install the 3/4 in. NPT close nipple (9) in the pump siphon inlet.
2. Install the 3/4 x 3/4 x 1/2 in. tee (8) (single kit) or the cross (11) (dual kit) on the close nipple.
3. If you are assembling a standard dual valve kit, install the 3/4 in. NPT side of the bushings (10) into the cross.
4. Install the circulation valve(s) on the 1/2 in. NPT side outlet of the tee, bushings, or cross. Orient the valve so the 1/4 in. NPT ports are on the top and the bottom of the valve.
5. Install the 3/8 x 1/4 in. NPT male hex nipple (7) and the ball valve (6) in the bottom 1/4 in. NPT port of the circulation valve.
6. Install the male connector (3) in the bottom of the ball valve. Install the drain-off hose (5) on the male connector.
7. Install a male connector (3) in the drain-off rod, and connect the hose.

## Assembly (contd)

8. Install a 1/4 in. NPT x 1/2-20 JIC elbow (1) in the remaining 1/4 in. NPT port on the top of the circulation valve.
9. Connect a high pressure fluid hose from the return side of the fluid circuit to the elbow on the circulation valve.
10. Connect your siphon hose to the tee or cross.

## Circulation Valve Operation

Rotate the circulation valve outer knob clockwise to close the valve, counter-clockwise to open it. To lock the valve setting, rotate the inner knob until it contacts the valve body and tighten it securely.



**CAUTION:** Never close the circulation valve more than finger tight. Over-tightening may damage the carbide point and seat.

Opening the circulation valve increases the return flow through the valve, causes the pump to run faster (increases the cycle rate), and increases the volume of fluid flowing through the system. Closing the valve decreases the return flow, causes the pump to run slower, and decreases the volume of fluid flowing through the system.

The typical stroke rate for most pumps while circulating coating material, with no guns spraying, is 5–10 strokes per minute (6–12 seconds per stroke).

**NOTE:** The more the circulation valve is opened, the more potential there is for fan pattern collapse or “wink” at the spray device when the pump changes direction or shifts. Open the circulation valve just enough to maintain the required fluid temperature and agitation in the circulation loop.

## Bleeding and Flushing

To bleed air or to drain waste fluid or flushing material from the system, place the drain rod in a grounded container, then close the circulation valve and open the ball valve.

## Parts

To order parts, call the Nordson Finishing Customer Support Center at (800) 433-9319 or your local Nordson representative.

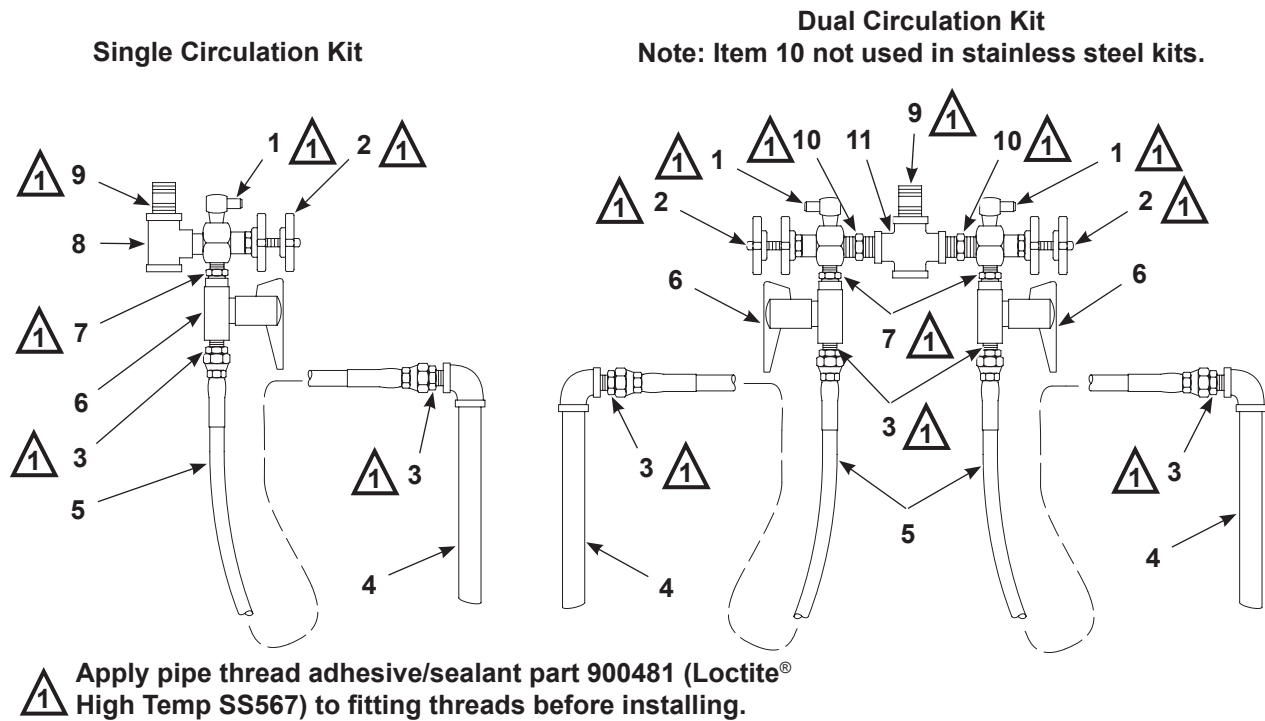


Figure 1 Single and Dual Circulation Kits

## Stainless Steel Single and Dual Circulation Kit

See Figure 1.

Item	Part	Description	Quantity		Note
			Single	Dual	
–	244778	SERVICE KIT, circulating, stainless steel, single	1	–	
–	244780	SERVICE KIT, circulating, stainless steel, dual	–	1	
1	972177	• ELBOW, male, 37, 1/2-20 x 1/4 in., stainless steel	1	2	
2	750222	• VALVE, circulation, stainless steel	1	2	A
3	972103	• CONNECTOR, male, 37, 3/4-16 x 3/8 in., stainless steel	2	4	
4	750250	• ROD, drain off	1	2	
5	823060	• HOSE, drain off, 3/8 in. ID, 5 feet	1	2	
6	750130	• VALVE, ball, stainless steel	1	2	B
7	973971	• NIPPLE, hex, 3/8 x 1/4 x 1.406 in., stainless steel	1	2	
8	973294	• TEE, pipe, 3/4 x 3/4 x 1/2 in., stainless steel	1	–	
9	973113	• NIPPLE, ex heavy, 3/4 x 2.50 in., stainless steel	1	1	
11	973970	• CROSS, 3/4 x 1/2 in., stainless steel	–	1	
NOTE: A. Refer to the <i>Circulation Valve</i> instruction sheet part 1033690 for repair and parts information.					
B. Refer to the <i>Ball Valve</i> instruction sheet part 1619942 for repair and parts information.					

Issued 10/21

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# Two-Way Ball Valves, Stainless Steel

## Specifications

Nordson two-way ball valves regulate or change the direction of fluid flow. Ball valves have the following specifications.

Ports:	3/8-in. NPT
Seals:	Ball seat
Maximum working pressure:	207 bar (3000 psi)
Maximum working temperature:	232 °C (450 °F)
Valve dimensions:	See Figure 1

## Ball Valve Repair

See Figure 1.

### *Disassembly*

1. Remove the socket-head screw (5) from the handle (4). Remove the handle from the ball valve.
2. Remove the flat spring (3) from the stem (1).
3. Unscrew the stem gland nut (6) from the housing (10). Pull the stem (1) out of the valve body.
4. Remove the thrust washer (7) and the stem packing (2).
5. Unscrew the body cap (9) from the housing.
6. Remove the ball (12) and ball seats (11). Remove and discard the body seal (8).

Clean and inspect the valve parts. Replace any worn or damaged parts.

## ***Assembly***

1. Install new ball seats (11) in housing (10) and body cap (9).
2. Install new thrust washer (7) and stem packing (2) onto stem (1).
3. Insert stem (1) into housing (10), and screw stem gland nut (6) finger tight. Turn stem to where the slot is vertical. Install ball (12) into housing, aligning the slot in the ball with the end of the stem.
4. Place body seal (8) into slot of housing (10). Make sure that the stem slot is vertical, then screw body cap (9) into housing (10).
5. Tighten body cap (9) to 55–60 ft-lb (74.5–81 N•m) of force. Tighten gland nut (6) to 35–40 in-lb (3.9–4.5 N•m) of force.
6. Insert the flat spring (3) into the groove in the stem (1).
7. Install the handle (4) over the stem (1). Align the holes in the handle and stem. Install the socket-head screw (5) into the handle and tighten it securely.

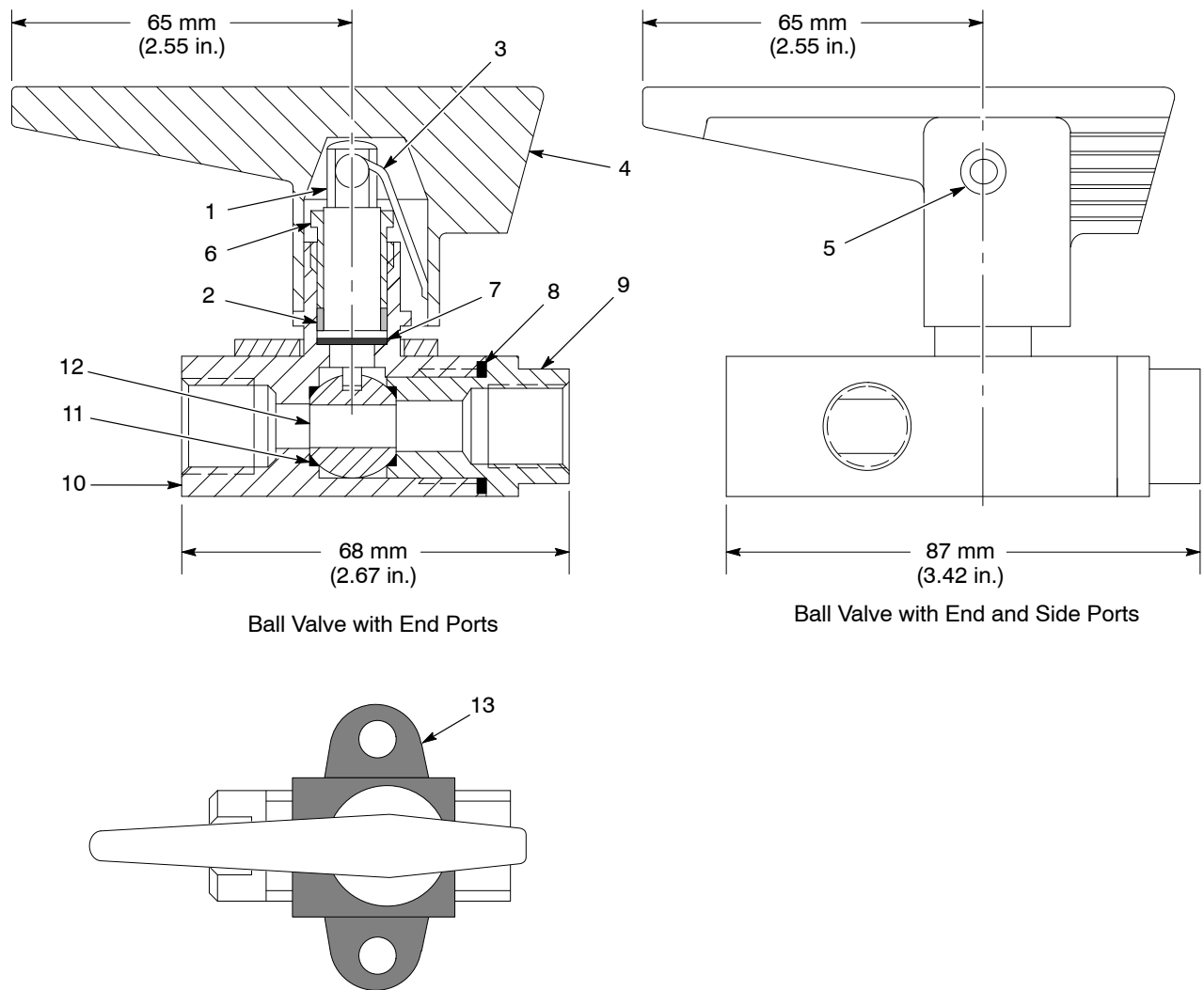


Figure 1 Ball Valve Dimensions and Parts

## Parts

To order parts, call the Nordson Finishing Customer Support Center at (800) 433-9319 or your local Nordson representative.

### Ball Valves

See Figure 1.

Item	Part	Description	Quantity
—	750130	VALVE, ball, stainless steel	1
1	750134	• STEM	1
2	750046	• PACKING, stem	1
3	750048	• SPRING, flat, 1.125 x 0.218 OD x 0.026 in.	1
4	750049	• HANDLE	1
5	1098342	• SCREW, SHCS, #8-32 x 0.875 in., 316 stainless steel	1
6	750045	• NUT, gland, stem	1
7	750047	• WASHER, thrust, 0.343 x 0.500 x 0.020 in.	1
8	750060	• SEAL, body	1
9	1619392	• BODY, stainless steel, cap	1
10	1619393	• HOUSING, valve	1
11	1619391	• SEAT, ball	2
12	750135	• BALL	1
13	750055	OPTIONAL BRACKET	1

### Ball Valve Repair Kit

See Figure 1.

Item	Part	Description	Quantity	Note
—	1619397	KIT, stainless steel valve, ball valve	1	
2	750046	• PACKING, stem	1	
3	750048	• SPRING, flat, 1.125 x 0.218 x 0.026 in.	1	
7	750047	• WASHER, thrust, 0.343 x 0.500 x 0.020 in.	1	
8	750060	• SEAL, body	1	
11	1619391	• SEAT, ball	2	



Issued 05/20

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