

Description

See Figure 1. The bubble detect calibration kit consists of an air injector. The air injector injects air into the material flow upstream from the CE20 gun to determine acceptable and unacceptable voids in material beads. The air injector mounts to the air injector manifold.

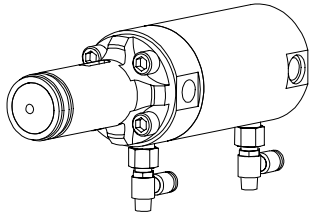


Figure 1 Air Injector

Bubble Detect Calibration



Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

Use this procedure to determine how many air bubble injections from the air injector will cause an unacceptable void in the bead and detect a fault. The following is an example of a calibrated system:

If 3 air bubble injections produce an unacceptable void in the bead and a fault, then 2 air bubble injections should produce an acceptable bead and no fault.

Install the Air Injector

Customer-supplied $\frac{1}{4}$ -in. tubing is required for the retract and extend ports.

1. See Figure 2. Remove the plug (1) from the air injector manifold (5). Make sure that the O-ring remains in the manifold body groove.
2. Lubricate the O-ring and air injector (2) threads with general purpose grease.
3. Install the air injector (2) onto the manifold (5) and hand tighten.

NOTE

Use regulated, filtered shop air at 80–100 psi to operate the retract and extend ports.

4. Connect the tubing from an air supply to the extend (3) and retract (4) ports.
5. On the Nordson controller, access the **Bubble Detect** screen. Set the the **Bubble Detect Sensitivity** to 30 for 1000 psi transducers.
OR
15 for 2000 psi transducers.

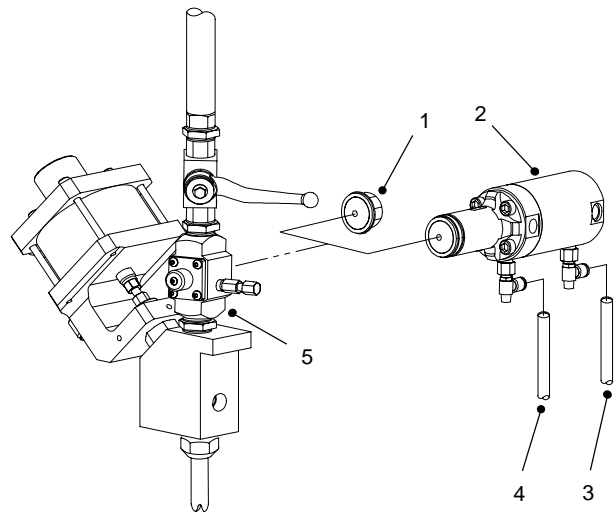


Figure 2 Installing the Air Injector

Perform the Calibration Procedure

1. Using a test surface, set up the system to dispense a 3-ft bead of urethane at production flow rate and robot speed.
2. See Figure 3. Apply air to the retract port (2).
3. Close the ball valve (6). Open the CE20 gun (3) to purge material pressure. Wait at least 30 seconds before injecting the first air bubble.

NOTE

The CE20 gun may not purge excess pressure if the air injector manifold (4) is installed too far from the nozzle tip. If the procedure generates a bubble in the bead, it indicates that the air injector did not complete an injection stroke. Use the bleed valve (7) to bleed off pressure before each air injection process if necessary.

4. Make sure that the bleed valve (7) is closed.
5. Apply air to the retract port (2), then the extend port (1). Look into the slot on the air injector (5). Make sure that the red ring completely passes through the slot. Leave the cylinder in this position for 10 seconds, then apply air to the retract port (2).
6. Close the CE20 gun (3). Open the ball valve (6).
7. Dispense beads onto the test surface until a void occurs.

NOTE

Depending upon the distance of material flow from the injector manifold (4) to the nozzle tip, an air bubble may not occur until the second or third bead pass. If this happens, record the total dispense time before the air bubble occurs so that a timed purge over a waste container can be performed prior to the test bead.

8. Record the size of the void in the bead and check to see if a fault was detected on the Nordson controller. If the void in the bead is acceptable and a fault was not detected, repeat step 5 and add another air bubble.
9. Access the **Bubble Detect** screen on the Nordson controller. Perform one of the following:
 - a. If the void in the bead is acceptable and a fault was detected, set the **Bubble Detect Sensitivity** 10–15 percent higher and repeat step 5.
 - b. If the void in the bead is unacceptable and a fault was not detected, set the **Bubble Detect Sensitivity** 10–15 percent lower and repeat step 5.

NOTE

Typically, injecting one air bubble will not cause an unacceptable void in the bead unless the robot speed is too fast for the given material flow rate.

10. Record the number of air bubble injections and the **Bubble Detect Sensitivity** point for each cell.

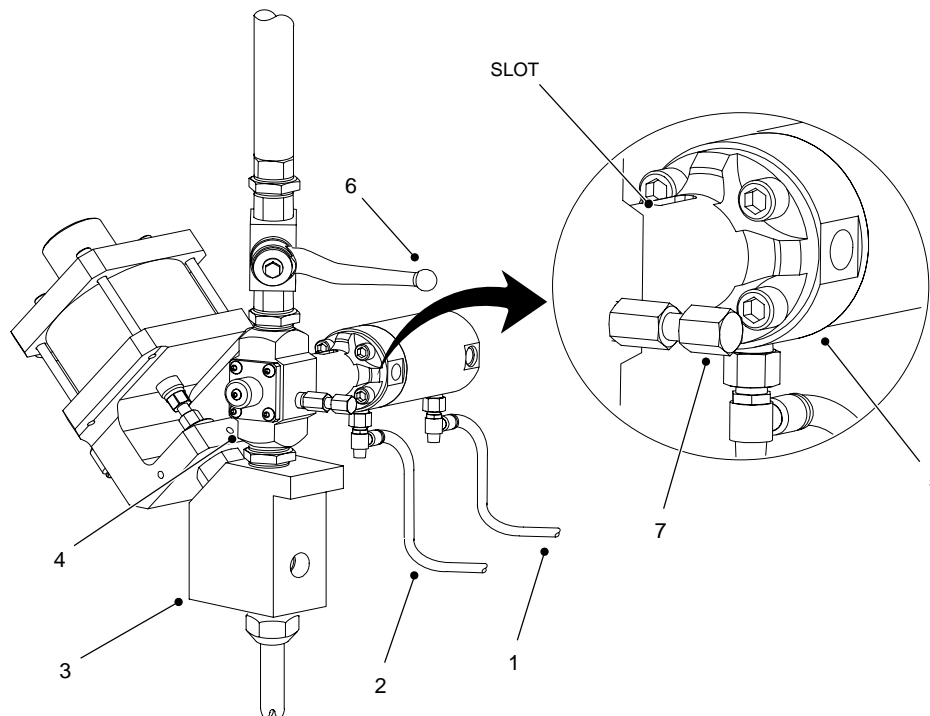


Figure 3 Calibrating the System

Verifying a Calibrated System

1. Using a test surface, set up the system to dispense a 3-ft bead of urethane at production flow rate and robot speed.
2. Make sure that bubble detect sensitivity point corresponds to the recorded calibration results.
3. See Figure 3. Apply air to the retract port (2).
4. Close the ball valve directly upstream from the CE20 gun (3).
5. Open the CE20 gun (3) to purge material pressure. Wait at least 30 seconds before injecting the first air bubble.
6. Apply air to the extend port (1). Look into the slot on the air injector (5). Make sure that the red ring completely passes through the slot. Leave the cylinder in this position for 10 seconds, then apply air to the retract port (2).
7. Repeat step 6 to inject the required number of air bubbles to create an unacceptable bead and detect a fault.

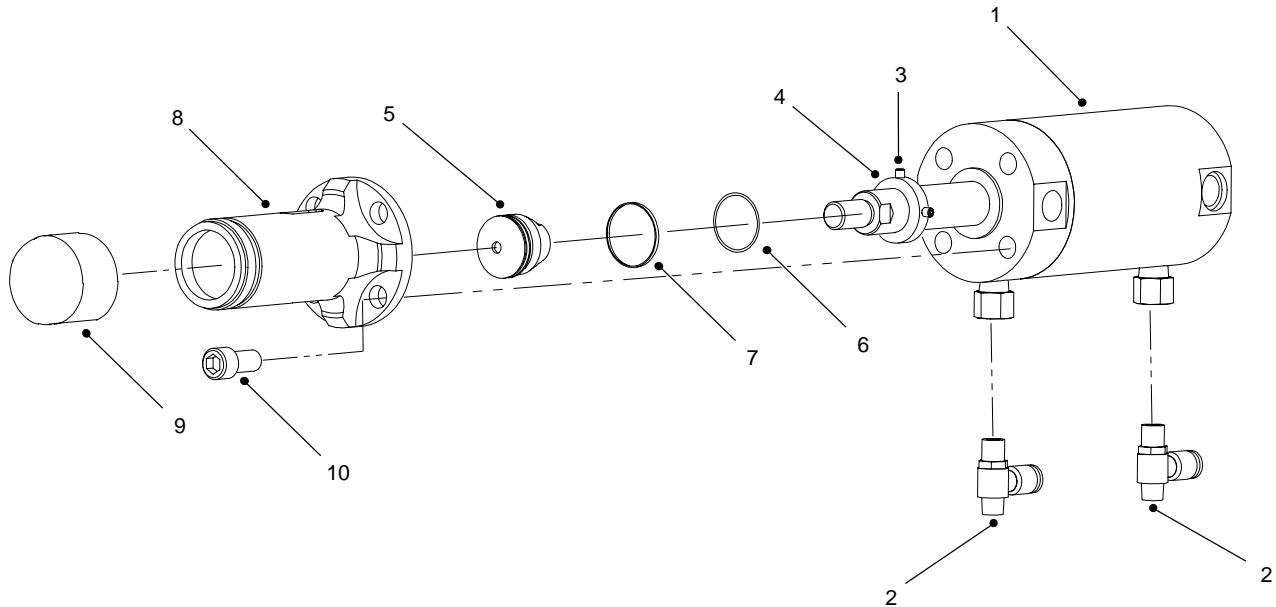
Remove the Air Injector from the Manifold

1. See Figure 2. Disconnect the tubing from the extend (1) and retract ports (2).
2. Remove the air injector (2) from the manifold (5). Apply general purpose grease to the check valve area in the port.
3. Install the plug (1) to the manifold (3) and tighten securely.

Parts

To order parts, call the Nordson Customer Service Center or your local Nordson representative.

See Figure 4 and the following parts list.



LUBRICATION POINTS

Items 6 and 7: Apply high-temperature grease.
Item 8: Apply high-temperature grease to internal surface.

TORQUE SPECIFICATIONS

Item 3: 15 ± 0.5 in.-lb (1.7 ± 0.05 N•m)
Item 10: 23 ± 0.5 ft-lb (31.18 ± 0.02 N•m)

Figure 4 Air Injector

Item	Part	Description	Qty	Note
—	1052975	Air injector	1	
1	1052264	• Air cylinder	1	
2	1034040	• Speed control elbow, $\frac{1}{4}$ tube x $\frac{1}{8}$ NPT	2	
3	-----	• Socket set screw, 8-32 x 0.187	2	
4	-----	• Indicating flange	1	
5	-----	• Air injector piston	1	
6	940232	• • O-ring, Buna N, 1.063 x 1.188 x 0.063 in.	1	
7	955082	• • Seal, G-ring, 1.08 x 1.25 x 0.08 in.	1	
8	1052266	• Air injector cylinder	1	
9	900815	• Cap	1	
10	-----	• Socket screw, $\frac{3}{8}$ -24UNF x $\frac{3}{4}$	4	