Passive Check Valve
Installation Instructions for H-Class Systems

715004569 / Revision A
General information

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# Table of contents

**General information** ........................................................................................................... ii
  Copyright notice .................................................................................................................. ii
  Trademarks ....................................................................................................................... ii

**Passive Check Valve Installation Instructions** ......................................................... 4
  Removing the i²Valve actuator ....................................................................................... 4
  Installing the passive check valve ............................................................................... 10
Passive Check Valve Installation Instructions

This document provides instructions to replace the $i^2$Valve actuator in a quaternary solvent manager included in an ACQUITY UPLC H-Class system with a passive check valve.

For safety advisory information, see Appendix A in the ACQUITY UPLC H-Class System Guide.

**Warning:** Observe Good Laboratory Practice (GLP) at all times, particularly when working with hazardous materials. Consult the Material Safety Data Sheets regarding the solvents you use. Additionally, consult the safety representative for your organization regarding its protocols for handling such materials.

**Notice:** To avoid contaminating system components, wear clean, chemical-resistant, powder-free gloves when replacing the $i^2$Valve actuator.

**Required materials:**
- Chemical-resistant, powder-free gloves
- 1/4-inch open-end wrench
- 5/8-inch open-end wrench
- T8 TORX driver
- Passive inlet check valve assembly
- $i^2$Valve jumper connector
- Tubing assembly, extending from the mixer manifold to passive check valve
- Storage bag (for the $i^2$Valve following its removal)

**Removing the $i^2$Valve actuator**

**Notice:** To avoid damaging the $i^2$Valve actuator, do not attempt to force or draw liquid or gas through the valve’s inlet or outlet ports.
To remove the $i^2Valve$ actuator:

**Notice:** To avoid damaging electrical components and circuitry, do not disconnect an electrical assembly while electrical power is applied to an instrument or device. To completely interrupt power, set the on/off switch to the "off" position, and then disconnect the power cord from the ac source. Wait 10 seconds thereafter before disconnecting an assembly.

1. Flush the quaternary solvent manager using a nonhazardous solvent.
2. Power-off the quaternary solvent manager.

**Tip:** The quaternary solvent manager is referred to as “pump” on the warning label affixed to the $i^2Valve$ actuator.

**Notice:** To avoid damaging the connector or cable, grasp the $i^2Valve$ connector by its knurled diameter.

3. Grasp the $i^2Valve$ connector by the knurled diameter, and pull it toward you, disconnecting it from its receptacle.

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1. $i^2Valve$ connector
2. Connector receptacle
3. Knurled diameter
4. Loosen the fitting that secures the outlet tubing to the inlet manifold outlet.

5. Use the 1/4-inch open-end wrench to disconnect the fitting that secures the tubing extending to the inlet manifold from the side of the \( i^2 \text{Valve} \), and then remove the tubing.
6. Use the 5/16-inch open-end wrench to loosen the shell nut, and then fully unscrew it.

![Diagram of pump head with marked wrench position](image)

1. Place 5/16-inch open-end wrench here.

**Notice:** To avoid shock or equipment damage, never place the electrical connector in a wet drip tray.

7. Remove the $i^2$Valve actuator from the bottom of the primary pump head.

**Important:** Ensure that when you remove the valve assembly, you also remove the PEEK washer, which is normally on the top face of the $i^2$Valve cartridge. If the washer remains in the head, the passive check valve you are installing will leak.
8. Locate the receptacle for the $i^2$Valve connector, from which the $i^2$Valve actuator was removed.
9. Align the white markings on the \( i^2Valve \) jumper connector, and then push the jumper connector into the \( i^2Valve \) electrical receptacle to secure it.

10. Store the \( i^2Valve \), cartridge, PEEK washer, and the tubing removed in step 5 in the bag included in the kit.

**Tip:** Store these components for potential use in the future.
Installing the passive check valve

To install the passive check valve:

1. Unpack the new check valve.
2. Ensure that the new PEEK washer is inserted into the new check valve so that its chamfered edge faces away from the check valve.

3. Insert the check-valve assembly into the head, and use the 1/2-inch wrench to tighten the check-valve nut 1/8-turn beyond finger-tight.

   1. Chamfered edge facing away from check valve
   2. PEEK washer
   3. Check valve
   4. Check-valve housing
   5. 1/2-inch hex nut
   6. 5/16-inch open-end wrench flat

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4. Attach the outlet-tubing fitting of the tube assembly to the inlet manifold, and then finger-tighten it to the maximum extent.

5. Using the 5/16-inch open-end wrench to hold the check valve in place, attach the compression fitting to the check valve.

6. Use the 1/4-inch wrench to tighten the compression screw as follows:
   - For a new stainless steel tubing assembly, 3/4-turn beyond finger-tight
   - For an existing stainless steel tubing assembly, as much as 1/6-turn beyond finger-tight

7. Power-on the quaternary solvent manager.

8. Prime the quaternary solvent manager.