

Introduction

Semiconductor wafer manufacturing facilities use a number of unit operations to create high purity deionized (DI) water on site. Once the DI water has been created, it is distributed throughout the Fab at different locations at different pressures. Due to the complexity of the DI process and the DI water distribution process, the liquid pressure requires measurements at many different points to verify unit operations are functioning properly and the process is being maintained.

Many DI systems use fluid filled pressure measurement instrumentation. They typically have a metallic pressure sensor in contact with a stationary fill fluid. The fill fluid is in contact with a flexible seal (or isolation membrane) that separates it from the process fluid.

As the process pressure changes, the fill fluid pressure correspondingly changes, and the device measures the fill fluid pressure.

Figure 1 is an example diagram of a fluid filled gauge protector that can leak fluid and cause process contamination.

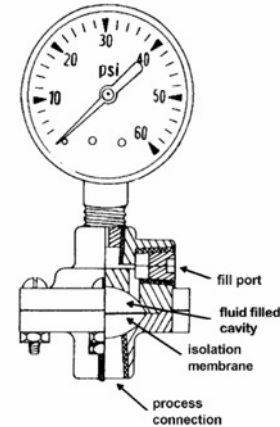


Figure 1. An example diagram of a fluid filled gauge protector that can leak fluid and cause process contamination.

Fluid filled pressure measurement devices have a number of disadvantages for ultra high purity applications. Seal leakage causes instantaneous contamination when the fill fluid enters the process stream and continuous contamination

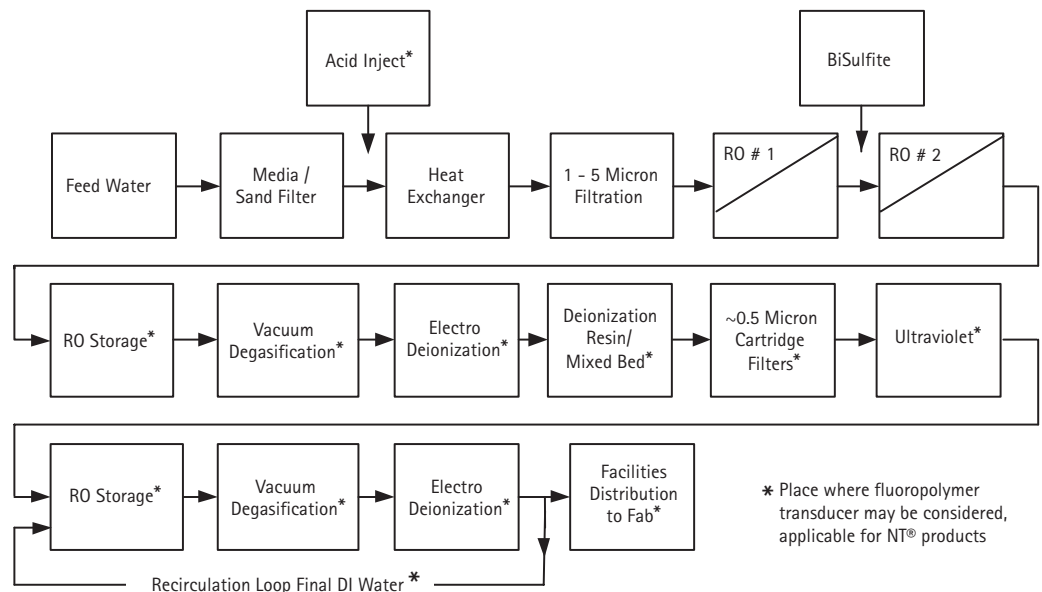


Figure 2. An example of a typical on-site deionized water treatment system for semiconductor fabs.

as the process fluid comes into contact with the metallic pressure sensor. Consequently, ions are introduced to the process stream. Accuracy can be affected by too much fill fluid, too little fill fluid, or bubbles in the fill fluid pocket that lead to errant pressure measurement. Additionally, the unit requires periodic maintenance potentially leading to downtime.

Finding the Solution

NT® Pressure Transducers utilize a nonmetallic sensing technology containing no moving parts or fill fluids. The wetted parts of the transducer consist of PTFE and other high purity fluoropolymers, and the exterior is NEMA 5X rated, making the instrument ideal for high purity applications and harsh chemical environments.

NT® Pressure Transducers are an ideal choice for replacing fluid filled pressure measurement devices.



Figure 3. NT® Single-Port Pressure Transducers are an ideal choice for replacing fluid filled pressure measurement devices.

Features

NT® Pressure Transducers:

- Use no moving parts
- Contain no fill fluids
- Utilize a nonmetallic sensing technology
- Deliver an integrated unit in a compact design
- Allow installation in almost any orientation

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The materials integrity management company

NT® Single-Port Pressure Transducer Cutaway Drawing

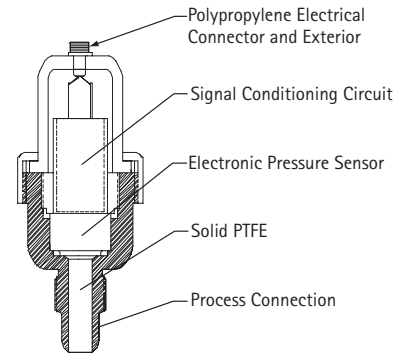


Figure 4. NT® Single-Port Pressure Transducer.

- Provide a chemically resistant exterior
- Offer years of problem free experience in deionized water systems and in the harshest chemical environments
- Allow remote monitoring via automation (PLC)

Entegris designs and manufactures measurement instruments for the high purity and corrosive chemical environments of the semiconductor industry. Our products measure flow, pressure and level for the various acids, caustics, solvents and slurries used in the industry.

For More Information

For more information on deionized water systems or our complete line of fluoropolymer fluid handling solutions, contact your local Entegris distributor or Entegris, Inc.

To review our complete line of sensing and control product solutions visit Entegris' Web site at www.entegrisfluidhandling.com or contact Entegris Customer Service.