



# WATERWORKS Product Bulletin

## Unmeasured-Flow Reducer (UFR) Testing

### Quality Control

Pioneering an innovative product requires a tremendous amount of testing and attention to detail. At A.Y. McDonald we pride ourselves on doing just that. The introduction of the UFR to the US market required years of research, design work, and field testing. The items below describe our testing process for production as well as ongoing life cycle tests.

### Factory Testing

During the manufacturing process, every UFR is put through the following battery of air tests to ensure it functions correctly:

1. Cycle or “Burp” Test – This test verifies that the UFR opens at the proper pressure differential. The valve must cycle three times in a designated time period in order to pass the test.
2. Low Pressure Backflow Test – For check version UFRs, this test verifies that the UFR prevents backflow at low pressures. For non-check UFRs, this test verifies that the UFR will allow backflow.
3. No Flow Test – This test verifies that the UFR will hold enough pressure so that when the UFR opens, the volume of water that passes through the meter is sufficient to cause registration.
4. High Pressure Test – For check version UFRs, this test verifies that the UFR prevents backflow at high pressures. For both check and non-check version UFRs, this test verifies the integrity of the body and end piece joint.



### Real World Testing

The first UFR installations were in Jerusalem, Israel in 2005. Samplings of these UFRs are tested periodically and no cartridge failures have been found. Jerusalem continues to install UFRs on all 3/4" and smaller services. The first US UFR installations began in 2008. Hundreds of thousands of UFRs are reliably batching low-flows and increasing revenue worldwide, and in over 60 US cities.

### Change-out Recommendation

The UFRs lifespan in a system is equal to or greater than the effective life of a water meter in the same system. When replacing a water meter, the UFR should also be replaced.

### Ongoing Life Cycle Testing

UFR cartridges undergo continuous laboratory accelerated wear tests to ensure that you can rely on the UFR to provide years of trouble free, reliable operation in your water system. The cartridges are tested in a wide variety of conditions that simulate operation in several types of real world installations. This testing has subjected the UFR to over 36 million batch cycles, equivalent to approximately 20 years of service in a continuous leak condition.

