



The Flow Conditioning Device: Installation Point, Mechanism, and Meter Accuracy

Water Flow Innovations LLC

Flow Conditioning Device (FCD)
waterflowinnovations.com

INSTALLATION POINT & MECHANISM

Installed Just After the Meter — Ahead of Every Validated Process System

The Flow Conditioning Device (FCD) installs between two pipe joints on the main water line immediately after your water meter — ahead of your facility's internal distribution to ultrapure water pretreatment feed, cooling tower and chiller makeup, scrubber and abatement demand, and general facility supply. Each FCD is custom-built to the facility's exact specifications — pipe size, operating water pressure, and existing PRV configuration — and may include an integral check valve depending on the installation requirements. It requires no power and is installed by a licensed plumber or mechanical contractor with water off for approximately one hour.

Mechanically, the FCD creates a slight static back-pressure that extends back through the meter, reducing the air, gas, and turbulence that form during demand events and delivering a laminar-like flow profile through the measurement chamber.

Municipal meters register volumetric displacement — entrained air and turbulent flow register as billable volume. Pressure loss through the device is under 0.8 psi across all flow conditions; downstream pressures, temperatures, and flow rates are effectively unchanged. Because the FCD sits just after the meter — ahead of UPW pretreatment and every qualified boundary — it is outside tool envelopes and fab process parameters; no change is required. Complete technical documentation is provided to support your internal change control review.

DIAGNOSTIC CHECKLIST — SIX SIGNS YOUR METER IS OVER-READING

☐ Utility water cost above site models

Water and sewer costs persistently exceed facility demand models.

☐ Sewer moves in lockstep with water

Sewer charges follow the inflated meter reading — the over-read is billed twice.

☐ Intake exceeds UPW and makeup math

Metered volume won't reconcile against UPW feed, tower makeup, and abatement demand.

☐ Audits confirmed usage, not the source

Facility audits confirmed high usage without finding leaks or an operational cause.

☐ Pressure swings at high-draw events

Pretreatment feed and tower makeup produce visible pressure swings — entrained air registers as billable volume.

☐ Water treated as fixed fab overhead

Water is budgeted as an uncontrollable fab expense rather than a correctable one.

WHERE OVER-READING HITS THE OPERATION

Site Utility Economics

Inflated intake flows into facility operating cost — with sewer billed from the same meter, every over-read gallon hits the site twice.

Ahead of the UPW Boundary

The FCD installs immediately after the municipal meter, ahead of UPW pretreatment — meter correction with no effect on qualified water systems.

Makeup Demand Events

UPW feed draw, tower level calls, and abatement demand create exactly the events that entrain air at the meter — around the clock.

Water Intensity Reporting

Corrected intake gives accurate gallons-per-wafer data for corporate water stewardship reporting — savings you can document.

ENGINEERING Q&A

Q: Will the FCD affect UPW quality, tool supply, or any qualified parameter?

A: No. Pressure loss through the FCD is under 0.8 psi across all flow conditions, and it installs immediately after the municipal meter — ahead of pretreatment and every qualified system boundary. Feed pressures, flows, and all downstream parameters are unchanged.

Q: What does this look like in change control?

A: A main-line plumbing modification just after the municipal meter, outside the qualified boundary. Complete technical documentation is provided to support your review — no downstream requalification is triggered.

Q: How does the FCD affect sewer charges?

A: Sewer charges are typically calculated from metered intake. When the meter over-reads UPW feed and makeup demand, both charges are inflated. After installation, intake reflects actual consumption, reducing both line items.

Q: How do we estimate savings before committing?

A: Use the Water & Sewer Bill Savings Calculator at waterflowinnovations.com for an instant projection, then request the free savings analysis — a documented, site-specific projection suitable for a facilities engineering package.

Q: How quickly do savings appear?

A: The meter reads accurately immediately after installation. Savings appear on the next full water and sewer billing cycle — no ramp-up period. 90% of installed customers reach full return on investment in under 12 months.

ENGAGEMENT PROCESS — FOUR STEPS

From Analysis to Verified Bill Reduction

1

Free Savings Analysis

We review your water and sewer bills and facility demand profile — no cost, no obligation.

2

Documented Projection

You receive a written savings projection specific to your facility before any commitment.

3

FCD Installation

Licensed plumber or mechanical contractor installs immediately after the meter — water off approximately one hour.

4

Verified Bill Reduction

Before-and-after bill comparison verifies the reduction on your next billing cycles.

GUARANTEE & WARRANTY TERMS

6-Month Money-Back Guarantee

If you're not satisfied within 6 months of installation, the FCD purchase is fully refunded — no questions asked. Installation labor is non-refundable.

Lifetime Transferable Warranty

The FCD carries a lifetime warranty, transferable to the new building owner if the facility changes hands (a transfer fee applies).

DEVICE SPECIFICATIONS

Construction, Certification & Installation

Custom-built to each facility's specifications — pipe size, operating pressure, PRV configuration · 316L stainless steel construction; titanium and specialty alloys available by special order for medical and other specialized applications · Configuration may include an integral check valve per installation requirements · No power required · Under 0.8 psi pressure loss · Certifications: IAPMO, NSF/ANSI/CAN 61, KIWA, GMP, SQF · Installed by licensed plumber or mechanical contractor

Regulatory & Standards References: SEMI F63 (Ultrapure Water) · EPA NPDES · SEMI S23