



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 purified water and water-for-injection pretreatment feed, utility and CIP supply, cooling makeup, and lab demand. 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 pretreatment, generation, and every validated system boundary — it is outside cGMP-validated parameters; no process 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 generation and CIP math**

Metered volume won't reconcile against water generation, CIP cycles, and facility demand.

☐ **Audits confirmed usage but no source**

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

☐ **Pressure variability at high-draw events**

CIP cycles and pretreatment feed produce visible pressure swings — entrained air registers as billable volume.

☐ **Water treated as fixed site overhead**

Water is budgeted as an uncontrollable facility 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 Validation Boundary

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

CIP & Pretreatment Demand Events

CIP draw, pretreatment feed, and cooling makeup create exactly the events that entrain air at the meter — every campaign.

Change Control Simplicity

Complete technical documentation supports a straightforward, main-line change control filing — no requalification of downstream systems.

ENGINEERING Q&A

Q: Will the FCD affect purified water generation, CIP supply, or any validated 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, generation, and every validated system boundary. Feed pressures, flows, and all qualified 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 validated boundary. Complete technical documentation is provided to support your change control 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 pretreatment, CIP, and utility 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: FDA cGMP (21 CFR Parts 210/211) · USP <1231> · ISPE Water & Steam Systems Guide