



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 autoclave steam generation feed, quench and cooling water, wash-down and decontamination lines, scrubber makeup, and plant facility 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, it is outside validated sterilization parameters, treatment efficacy testing, and permit conditions — 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

- ☐ **Cost per ton treated above targets**
Water and sewer cost per ton processed persistently exceeds budget and comparables.
- ☐ **Sewer moves in lockstep with water**
Sewer charges follow the inflated meter reading — the over-read is billed twice.
- ☐ **Intake won't reconcile to cycle counts**
Metered volume exceeds what autoclave cycles, quench, and wash-down can explain.
- ☐ **Audits confirmed usage but no source**
Facility audits confirmed high consumption without finding leaks or a process cause.
- ☐ **Pressure variability at cycle start**
Steam feed draw and quench events produce visible pressure swings — entrained air registers as billable volume.
- ☐ **Water treated as compliance overhead**
Water is budgeted as a fixed cost of operating rather than a correctable line item.

WHERE OVER-READING HITS THE OPERATION

- Cost per Ton & Plant Economics**
Inflated intake flows into cost per ton — with sewer billed from the same meter, every over-read gallon hits twice.
- The Audit That Finds Nothing**
Fixture and process audits count water that arrives; over-read volume never arrived and is invisible to them — the source is the flow conditions at the meter.
- Autoclave & Quench Demand Events**
Steam feed, quench cycles, and wash-down create exactly the events that entrain air at the meter — every processing cycle.
- Validated Process Isolation**
The FCD installs immediately after the meter, outside validated treatment parameters — meter correction with no effect on sterilization efficacy.

ENGINEERING Q&A

Q: Will the FCD affect autoclave steam supply, quench water, 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 meter, ahead of all plant distribution. Steam feed, quench flow, temperatures, and every validated treatment parameter are unchanged.

Q: Does installing the FCD trigger anything in our permit or validation documentation?

A: The FCD touches only incoming supply at the meter — outside treatment efficacy testing and permit conditions. Most facilities file it as a main-line plumbing change, supported by our complete technical documentation.

Q: How does the FCD affect sewer charges?

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

Q: How do I estimate savings for the plant 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, facility-specific projection suitable for a plant and compliance management 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: EPA · OSHA Bloodborne Pathogens Standard (29 CFR 1910.1030) · STAATT Treatment Efficacy Criteria