



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 cooling and mold temperature control makeup, extruder and calender cooling, compounding water, wash-down lines, and plant 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, it is outside compound formulations, mold process parameters, and discharge 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

- ☐ **Water cost per pound above targets**
Water and sewer cost per pound produced persistently exceeds plant comparables.
- ☐ **Sewer moves in lockstep with water**
Sewer charges follow the inflated meter reading — the over-read is billed twice.
- ☐ **Intake exceeds cooling demand math**
Metered makeup won't reconcile against cooling loops, compounding, and known plant demand.
- ☐ **Audits confirmed usage, not the source**
Plant audits confirmed high usage without finding leaks or a process cause.
- ☐ **Pressure swings at cooling draw**
Chiller and tower makeup draw produce visible pressure swings — entrained air registers as billable volume.
- ☐ **Water treated as cost of production**
Water is carried as a fixed production cost rather than a correctable line item.

WHERE OVER-READING HITS THE OPERATION

- Cost per Pound & Plant Economics**
Inflated intake flows into cost per pound — with sewer billed off the same meter, every over-read gallon is billed twice.
- The Audit That Finds Nothing**
Plant audits count water that arrives; over-read volume never arrived and is invisible to them — the source is the flow conditions at the meter.
- Cooling Makeup Demand Events**
Tower level calls, chiller makeup, and wash-down cycles create exactly the events that entrain air at the meter — every shift.
- Mold Process Isolation**
Cooling loops and mold temperature control run downstream — the FCD corrects the billing meter with no effect on process water.

ENGINEERING Q&A

Q: Will the FCD affect mold cooling, extruder water, or any process 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 plant distribution. Cooling flows, mold temperatures, and every process parameter are unchanged.

Q: Most of our cooling is closed-loop — does the FCD still apply?

A: Yes. The FCD corrects the municipal meter on the makeup and facility supply you're billed for. Closed loops reduce how much you buy; the FCD ensures the volume you do buy is measured accurately.

Q: How does the FCD affect sewer charges?

A: Sewer charges are typically calculated from metered intake. When the meter over-reads makeup 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, plant-specific projection suitable for an operations 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 Effluent Guidelines (40 CFR Part 428 — Rubber Manufacturing) · EPA NPDES · Plastics Industry Association (PLASTICS)

FREE SAVINGS ESTIMATE

Instant estimate — takes 30 seconds, no contact info required.

waterflowinnovations.com/water-bill-savings-calculator

Water Flow Innovations LLC

2651 Route 412
Coopersburg, PA 18036
Info@WaterFlowInnovations.com
1-(844)-934-8258

CERTIFICATIONS

IAPMO NSF/ANSI/CAN 61 KIWA GMP SQF

316L Stainless Steel · Made in USA
Under 0.8 psi pressure loss
Lifetime Transferable Warranty