



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 carcass wash and evisceration lines, scald and chill systems, sanitation wash-down headers, and refrigeration condenser makeup. 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 USDA FSIS-regulated operations, HACCP plans, and sanitation SOPs — required water operations and food safety procedures are untouched. Complete technical documentation is provided to support your internal change control review.

DIAGNOSTIC CHECKLIST — SIX SIGNS YOUR METER IS OVER-READING

- ☐ **Cost per head above benchmarks**
Water cost per head or per hundredweight persistently exceeds industry benchmarks.
- ☐ **Bills don't balance against production**
Metered intake resists balancing against production volume records.
- ☐ **Sewer surcharge disproportionate**
Surcharges calculated from metered intake outpace actual pretreatment discharge.
- ☐ **Spikes on multi-shift, high-speed days**
Bills climb on multi-shift or high-line-speed days beyond proportional demand.
- ☐ **Pressure variation at shift startup**
Observable supply header pressure swings at shift startup — the demand events that entrain air at the meter.
- ☐ **Water treated as compliance cost**
Water is accepted as an uncontrollable compliance cost of processing.

WHERE OVER-READING HITS THE OPERATION

- Cost per Head & Plant Margin**
Inflated intake flows directly into cost per head — billed on both the water and sewer side in a high-volume, thin-margin operation.
- Pretreatment & 40 CFR 432 Compliance**
POTW surcharges under EPA meat and poultry pretreatment standards (40 CFR Part 432) are calculated from metered intake.
- USDA & HACCP Unaffected**
FSIS-required water operations, HACCP plans, and sanitation SOPs are untouched — the FCD sits just after the meter, ahead of all process water.
- Operations & Engineering**
Water balance, sanitation optimization, and per-head efficiency projects start from a meter reading that includes volume that never arrived.

ENGINEERING Q&A

Q: Will the FCD affect USDA-required water operations, our HACCP plan, or food safety procedures?

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 systems. Carcass wash pressure, scald and chill operation, sanitation flow, and every FSIS-regulated parameter are effectively unchanged.

Q: Why don't our bills balance against production records?

A: Shift startups and simultaneous sanitation demand create repeated high-velocity events at the supply meter — generating air and turbulence billed as volume. The imbalance is frequently the over-read itself.

Q: How does the FCD interact with our pretreatment permit and surcharges?

A: Surcharges under 40 CFR Part 432 are typically calculated from metered intake. After installation, intake reflects actual consumption, reducing surcharge volume calculations. Discharge strength concentrations are unaffected.

Q: Can documented savings support buyer and sustainability reporting?

A: Yes, as cost documentation. Before-and-after utility bills verify the corrected billing. Because the FCD corrects the meter reading rather than reducing water use, confirm with your sustainability team how to report it for buyer scorecards, corporate sustainability reporting, and CDP disclosure.

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: USDA FSIS · EPA 40 CFR Part 432 · HACCP · NPDES & POTW Pretreatment