



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 irrigation mainlines, pivot and drip systems, stock and parlor watering, wash-down headers, and processing or CIP lines. 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 your irrigation design, crop program, and any USDA, SQF, or buyer audit scope — no operational change is required. Complete technical documentation is provided to support your internal change control review.

DIAGNOSTIC CHECKLIST — SIX SIGNS YOUR METER IS OVER-READING

☐ Bills rising without acreage or herd increases

Water charges climb year over year with no corresponding growth in irrigated acres or animal count.

☐ Irrigation use above crop requirements

Metered use runs consistently higher than agronomic water requirements predict for your crops and climate.

☐ Heavy spikes at irrigation season start

Season start-up demand events drive bills up disproportionately to actual applied water.

☐ Air in lines at start-up or cycling

Visible air discharge at start-up — the same entrained air registers as billable volume at the meter.

☐ Cost per acre or per head above benchmarks

Unit water costs persistently exceed extension service and peer operation benchmarks.

☐ Water treated as an uncontrollable input

Water is budgeted as a fixed input cost rather than a measured, controllable line item.

WHERE OVER-READING HITS THE OPERATION

Operating Cost per Acre & per Head

Inflated intake flows straight into unit production costs — every over-read gallon is billed whether or not sewer charges apply to the account.

Pump Start-Up Demand Events

Irrigation pump starts and pressurization cycles create exactly the high-velocity demand that entrains air at the meter — every set change, every day.

Buyer & Certification Water Data

SQF audits and buyer sustainability scorecards reference metered intake — over-reading overstates your true water intensity per unit produced.

Water Balance & System Management

Application planning, leak detection, and efficiency projects all start from a meter reading that includes volume that never arrived.

ENGINEERING Q&A

Q: Will the FCD affect irrigation pressure, emitter performance, or system flow rates?

A: No. Pressure loss through the FCD is under 0.8 psi across all flow conditions, and it installs ahead of your distribution. Mainline pressures, pivot and drip emitter performance, stock watering, and wash-down flow are unchanged — the FCD improves flow stability at the meter only.

Q: Why do bills spike at irrigation season start?

A: Season start-up means pumps pressurizing dry or partially drained lines — the highest-velocity demand events of the year. Those events generate air, gas, and turbulence at the supply meter, and the meter bills them as water. The FCD reduces the conditions that create them.

Q: We're on a water-only account with no sewer charge — does the FCD still pay?

A: Yes. The correction applies to the water volume charge itself. Where sewer or discharge charges do apply — processing barns, wash-down, dairies — those are billed from the same inflated meter reading and drop as well.

Q: Can documented savings support buyer sustainability programs or certification audits?

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 SQF documentation, USDA conservation program reporting, and buyer scorecards.

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 Conservation Programs · EPA WaterSense · SQF · State Cooperative Extension Water Resources