



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 life support system makeup water, exhibit fill and top-off, filtration backwash supply, and guest amenity and food service 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 life support system chemistry, husbandry protocols, and exhibit operating 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

☐ Water cost per gallon of exhibit rising

Water and sewer cost per exhibit gallon climbs with no change in collection or operations.

☐ Sewer follows the inflated meter

Sewer is billed from metered intake — over-read makeup demand is charged twice.

☐ Intake exceeds makeup and backwash math

Metered volume won't reconcile against LSS makeup, backwash schedules, and facility demand.

☐ Audits confirmed usage, not the source

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

☐ Pressure variability at backwash draw

Backwash cycles and exhibit fills produce visible pressure swings — entrained air registers as billable volume.

☐ Water treated as a fixed cost of mission

Water is budgeted as unavoidable rather than correctable.

WHERE OVER-READING HITS THE OPERATION

Operating Budget & Mission Dollars

Inflated intake flows directly into the operating budget — with sewer billed from the same meter, every over-read gallon costs the institution twice.

Outside the Life Support Boundary

The FCD installs immediately after the meter, ahead of all LSS treatment — meter correction with no effect on water chemistry or animal welfare.

Backwash & Fill Demand Events

Filter backwash, exhibit fill, and top-off create the events that entrain air at the meter — every operating day.

Documented Sustainability Wins

Corrected intake gives accurate water-use data for AZA and sustainability reporting — a data-accuracy correction, not reduced use.

ENGINEERING Q&A

Q: Will the FCD affect life support systems, exhibit water chemistry, or animal welfare?

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 all LSS treatment and exhibit distribution. Water chemistry, makeup flow, and every husbandry parameter are unchanged.

Q: What does installation look like for a facility that can never fully shut down?

A: A licensed plumber installs the FCD at the meter in approximately one hour with water off — scheduled against reserve capacity like any brief maintenance window. LSS recirculation is unaffected; only municipal makeup pauses.

Q: How does the FCD affect sewer charges?

A: Sewer charges are typically calculated from metered intake. When the meter over-reads makeup and backwash 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, facility-specific projection suitable for a board or leadership 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: AZA Accreditation Standards · EPA WaterSense