



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 tower and evaporative cooling makeup, adiabatic system supply, humidification feed, and domestic building 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 critical cooling operations and uptime commitments — installation is a scheduled one-hour shutdown on the municipal supply only, with tower basins providing normal buffer. Complete technical documentation is provided to support your internal change control review.

DIAGNOSTIC CHECKLIST — SIX SIGNS YOUR METER IS OVER-READING

☐ **Cooling use above system design**

Cooling water consumption runs higher than system design and load calculations predict.

☐ **WUE above industry benchmarks**

Water Usage Effectiveness runs above comparable facilities despite efficiency investments.

☐ **Bills rising without IT load increases**

Water charges climb without corresponding growth in IT load or heat rejection.

☐ **Water balance doesn't reconcile**

Metered intake exceeds what evaporation, blowdown, and domestic use can account for.

☐ **Sewer charges tracking water up**

Sewer charges follow the inflated meter reading — the over-read is billed twice.

☐ **Water treated as infrastructure expense**

Water is budgeted as fixed infrastructure expense rather than a managed input.

WHERE OVER-READING HITS THE OPERATION

WUE & Sustainability Metrics

WUE is calculated from metered intake — over-reading directly inflates the metric your sustainability commitments are judged on.

Water Balance Closure

The unreconciled gap between intake and evaporation-plus-blowdown is frequently the over-read itself — correction closes the balance.

Cost at Hyperscale Volumes

At data center makeup volumes, even single-digit over-reading percentages compound into substantial annual overpayment on water and sewer.

Critical Operations Unaffected

Cooling capacity, basin levels, and redundancy are untouched — the FCD is a passive device just after the meter, ahead of everything critical.

ENGINEERING Q&A

Q: Will the FCD affect cooling capacity, tower operation, or uptime?

A: No. Pressure loss through the FCD is under 0.8 psi across all flow conditions, and it installs ahead of facility distribution. Tower makeup rates, basin level control, adiabatic supply, and every cooling parameter are effectively unchanged — there is no interaction with critical systems.

Q: How is installation handled at a critical facility?

A: The FCD installs immediately after the municipal meter in approximately one hour with supply water off — tower basins and storage provide normal buffer for a scheduled window. Full technical documentation supports your change management process.

Q: Why doesn't our water balance reconcile?

A: Makeup valve cycling and pump starts create repeated high-velocity demand events at the supply meter — generating air and turbulence billed as volume. The unexplained intake-side gap in your balance is frequently the over-read itself.

Q: Will this improve our reported WUE?

A: Yes — legitimately. WUE is computed from metered intake, so correcting over-reading lowers reported WUE to its true value. Before-and-after bills document the change for sustainability reporting and CDP disclosure without additional infrastructure.

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: WUE / PUE Metrics · Uptime Institute · EPA WaterSense · CDP

FREE SAVINGS ESTIMATE

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

waterflowinnovations.com/water-bill-savings-calculator

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CERTIFICATIONS

IAPMO NSF/ANSI/CAN 61 KIWA GMP SQF

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