



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 furnace and lehr cooling circuits, forming water supply, cooling tower makeup, batch house demand, and wash-down headers. 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 furnace operating parameters, forming process control, and quality documentation — 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

☐ **Cooling cost per ton above targets**

Cooling water cost per ton of glass produced persistently exceeds plant targets.

☐ **Intake doesn't close against water balance**

Site water balance shows metered intake exceeding identified consumption and discharge.

☐ **Sewer tracks intake but seems disproportionate**

Discharge charges calculated from metered intake outpace actual drain volumes.

☐ **Summer costs beyond cooling demand**

Water costs rise during summer months more than cooling load calculations explain.

☐ **Pressure swings during furnace load changes**

Observable supply header pressure swings during furnace load changes — the demand events that entrain air at the meter.

☐ **Cooling water treated as continuous cost**

Cooling water is accepted as an uncontrollable continuous cost rather than a managed input.

WHERE OVER-READING HITS THE OPERATION

Cost per Ton & Plant Economics

Inflated intake flows directly into cost per ton of production — billed on both the water and sewer side, around the clock in a continuous process.

Continuous-Process Compounding

Furnaces never stop — meter over-reading on 24/7 cooling demand compounds across every hour of every campaign.

Discharge & NPDES Compliance

Discharge charges and permit volumes referencing metered intake are inflated by over-reading — correction closes the reported balance.

Operations & Engineering

Cooling optimization, cycles-of-concentration work, and efficiency projects start from a meter reading that includes volume that never arrived.

ENGINEERING Q&A

Q: Will the FCD affect lehr cooling circuit pressure or forming water supply?

A: No. Pressure loss through the FCD is under 0.8 psi across all flow conditions, and it installs ahead of plant distribution. Lehr cooling flow, forming water pressure, tower makeup, and furnace support systems are effectively unchanged.

Q: Can installation happen without interrupting a furnace campaign?

A: Yes — installation requires approximately one hour with municipal supply off, and tower basins and storage typically buffer that window. The FCD is ahead of everything; a scheduled shutdown coordinated with plant engineering is all that's needed.

Q: How does the FCD affect our discharge charges?

A: Sewer and discharge charges are typically calculated from metered intake. When the meter over-reads continuous cooling demand, reported discharge is inflated. After installation, intake reflects actual consumption, reducing both charges.

Q: Can documented savings support corporate 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 CDP disclosure, ISO 14001 data, and corporate 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: EPA NPDES · CDP · ISO 14001

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