



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 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 lab's internal distribution to fining and polishing slurry systems, water-cooled edging stations, and RO/DI final-rinse makeup water. 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, ahead of all process systems, it is outside generating, fining, polishing, edging, and coating operations — 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 job above targets**
Water and sewer cost per lens job produced persistently exceeds lab comparables.
- ☐ **Sewer moves in lockstep with water**
Sewer charges follow the inflated meter reading — the over-read is billed twice.
- ☐ **Intake exceeds process math**
Metered volume won't reconcile against fining, polishing, edging, and RO/DI demand.
- ☐ **Pressure swings at station startup**
Edging and RO/DI systems produce visible pressure swings — entrained air registers as billable volume.
- ☐ **Audits confirmed usage, not the source**
Lab audits confirmed high usage without finding leaks or a process cause.
- ☐ **Water treated as cost of production**
Water is carried as a fixed production cost rather than a correctable line item.

WHERE OVER-READING HITS THE OPERATION

- Cost per Job & Lab Economics**
Inflated intake flows into cost per lens job produced — with sewer billed from the same meter, every over-read gallon is billed twice.
- Fining, Edging & RO/DI Demand Events**
Fining/polishing cycling, water-cooled edging, and RO/DI makeup draws create exactly the events that entrain air at the meter — every shift.
- The Audit That Finds Nothing**
Lab audits count water that arrives; over-read volume never arrived and is invisible to them — the source is the flow conditions at the meter.
- Production Process Isolation**
Generating, fining, polishing, and edging run downstream of the meter — the FCD corrects billing accuracy with no effect on production schedules or optical quality parameters.

ENGINEERING Q&A

Q: Will the FCD affect fining, polishing, edging, or RO/DI water delivery?

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 lab distribution. Fining/polishing water delivery, edging wheel coolant flow, RO/DI feed, and other systems are effectively unchanged.

Q: How does the FCD affect sewer charges?

A: Sewer charges are typically calculated from metered intake. When the meter over-reads fining, edging, and RO/DI demand, both charges are inflated. After installation, intake reflects actual consumption, reducing both line items.

Q: Does the FCD affect our RO/DI water treatment system?

A: No. The FCD corrects the flow conditions at your incoming municipal meter — it does not treat, filter, or otherwise alter water composition, and does not connect to or modify your RO/DI system. An accurately metered supply gives your team a truer baseline for treatment capacity and effluent compliance planning.

Q: How do I estimate savings for the lab 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, lab-specific projection suitable for an operations 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 facility owner if the lab 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: The Vision Council · Optical Laboratories Association (OLA) · ANSI Z80.1 Ophthalmic Standards

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