



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 case drawing press cooling, annealing quench tanks, case washer lines, deluge and fire protection supply, and cooling tower makeup. 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 process control documentation, DoD facility requirements, and safety system certifications — typically no process change notification or re-qualification is required; confirm with your compliance team. Complete technical documentation is provided to support your internal change control review.

DIAGNOSTIC CHECKLIST — SIX SIGNS YOUR METER IS OVER-READING

☐ Cost per thousand rounds above targets

Water cost per thousand rounds or per unit persistently exceeds facility engineering targets.

☐ Intake doesn't close against water balance

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

☐ POTW surcharge disproportionate to discharge

Sewer surcharges calculated from metered intake outpace actual pretreatment discharge volume.

☐ Spikes during surge production periods

Water costs climb during production surges beyond proportional process demand.

☐ Pressure variation at drawing line startups

Observable supply header pressure swings during drawing press and washer startups — the demand events that entrain air at the meter.

☐ Water accepted as process overhead

Water is treated as fixed process overhead rather than a measured, controllable input.

WHERE OVER-READING HITS THE OPERATION

Production Cost per Thousand Rounds

Inflated intake flows directly into unit cost baselines and contract pricing assumptions — billed on both the water and sewer side.

Pretreatment & 40 CFR 433 Compliance

POTW permits and surcharges under EPA categorical pretreatment standards (40 CFR Part 433 for metal finishing) are calculated from metered intake.

DoD & GOCO Facility Reporting

Government-owned facility utility reporting and DFARS environmental data reference metered intake — over-reading overstates water intensity.

Operations & Engineering

Water balance studies, leak detection, and efficiency projects start from a meter reading that includes volume that never arrived.

ENGINEERING Q&A

Q: Will the FCD affect drawing press cooling, annealing quench parameters, or case washer effectiveness?

A: No. Pressure loss through the FCD is under 0.8 psi across all flow conditions, and it installs ahead of your internal distribution. Press cooling flow, quench tank parameters, washer pressure, and deluge system supply are effectively unchanged.

Q: Does installation require process control documentation or DoD facility change approval?

A: The FCD is a device installed just after the municipal meter, outside process control scope. Complete technical documentation is provided to support GOCO facility change control and any internal engineering review your site requires.

Q: How does the FCD interact with our POTW pretreatment permit?

A: Surcharges under EPA categorical pretreatment standards (40 CFR Part 433) are typically calculated from metered intake. When the meter over-reads, reported discharge is inflated. After installation, metered intake reflects actual consumption, reducing surcharge calculations.

Q: Can documented savings support DFARS environmental 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 DFARS environmental reporting and DoD facility sustainability data.

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 40 CFR Part 433 · EPA NPDES · DoD/DFARS Environmental Reporting · ATF

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