



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 tunnel and bay high-pressure pump feed, reclaim system makeup, spot-free RO rinse supply, and fleet wash 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 your wash equipment, chemical systems, and reclaim configuration — no equipment or 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

☐ Bills rising without car count increases

Water charges climb without corresponding growth in cars washed.

☐ Sewer charges tracking the water bill up

Sewer charges follow the inflated meter reading — you pay the over-read twice.

☐ Cost per car above industry benchmarks

Water cost per car persistently exceeds ICA and peer operator benchmarks.

☐ Pressure spikes or water hammer at valves

Rapid valve closures create pressure transients — the same events entrain air that the meter bills as water.

☐ Reclaim performance looks lower than it should

Reclaim ratios calculated against inflated intake understate how well the system actually performs.

☐ Water treated as a fixed cost of business

Water is accepted as a cost of doing business rather than a measured, controllable input.

WHERE OVER-READING HITS THE OPERATION

Cost per Car & Site Margin

Inflated intake flows directly into cost per car — for high-volume tunnels, over-reading compounds across every wash cycle of every day.

Sewer Billed from the Same Meter

Sewer charges are calculated from metered intake — every over-read gallon is billed twice, on the water side and the sewer side.

Reclaim System Performance Clarity

Reclaim ratios benchmarked against inflated intake understate true recovery — correcting the meter gives you the real number.

Multi-Site Benchmarking

Per-site water cost comparisons and expansion pro formas start from meter readings that include volume that never arrived.

ENGINEERING Q&A

Q: Will the FCD affect wash pressure, reclaim performance, or spot-free rinse quality?

A: No. Pressure loss through the FCD is under 0.8 psi across all flow conditions, and it installs ahead of your equipment. High-pressure pump feed, reclaim makeup, RO spot-free supply, and chemical dilution are effectively unchanged.

Q: What do valve-closure pressure spikes have to do with my bill?

A: Rapid valve cycling in tunnels and bays creates constant pressure transients and high-velocity demand — precisely the conditions that entrain air and turbulence at the supply meter. The meter registers that as billable water, wash after wash.

Q: How much does the sewer side matter?

A: A lot — sewer charges are typically calculated from the same metered intake, so every over-read gallon is billed twice. For wash operations with reclaim, the gap between billed volume and actual discharge can be substantial.

Q: How do I estimate savings before committing?

A: Use the Water & Sewer Bill Savings Calculator at waterflowinnovations.com — enter your current monthly bill for an instant projection, then request the free savings analysis for a documented site-specific number. No commitment at either step.

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



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: International Carwash Association (ICA) · EPA WaterSense

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