FLOW-TECH HVAC
WATER TREATMENT SYSTEMS

competitive comparison
HVAC APPLICATIONS

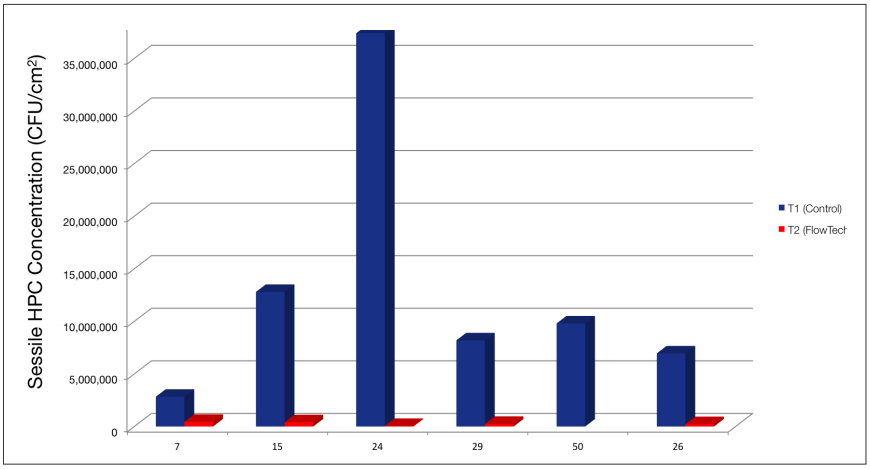
Test Proven Results

In 2009 ASHRAE commissioned a study through the University of Pittsburgh Department of Civil and Environmental Engineering. The two parties collectively established a protocol to test non-chemical water treatment systems and evaluate their efficacy of controlling biological fouling in cooling water systems. After an eight month comprehensive evaluation it was concluded that none of the magnetic, pulsed-power, electrostatic, ultrasound, or hydrodynamic cavitation systems tested showed any ability to control sessile microbial growth rates compared with the control!

In April of 2012 Flow-Tech Systems commissioned the University of Pittsburgh to test their Chemical Free water treatment system under this same protocol, and the results were very positive.

The test duration was just under 2 months. Biofilm coupon samples were pulled and sent to a Special Pathogens Laboratory for culture and counts. The Flow-Tech system reduced sessile bacterial growth by between 1-3 log. On average, sessile heterotrophic plate count concentrations were approximately 50 times higher in T1 (Control) than in T2 (Device) or in other words, the Flow-Tech treated tower realized a 98% reduction is biofilm growth.

In laboratory testing, the Flow-Tech treated tower realized a 98 % reduction in biofilm (sessile bacteria) growth.



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	Flow-Tech HVAC	Pulsed Power Industry Leader	Cavitation Industry Leader	Water Softener Industry Leader
ASHRAE Protocol	PASSED	FAILED	FAILED	Not tested
Signal Propagation	Signal propagates throughout system	No signal propagation	N/A	N/A
Remote Signal Verifiable with Osciliscope	YES	NO	N/A	N/A
No Flow Treatment	YES	NO	NO	YES
Prevents All Scale (including Silica)	YES	NO	NO	YES
Nondestructive, No Downtime Installation	YES	NO	NO	NO
Power Required (10" system / 800 ton)	20 Watts (110/1/60)	1,730 VA (230/1/60)	11,808 Watts (480/3/60)	<100 Watts (115/1/60)
Power Transfer Ratio	1:1 (100% efficiency) This is equal to 47 pulsed power systems.	1:933 (.11% efficiency)	N/A	N/A
Design	System conducts a randomly varying diminishing sine wave throughout the entire piping network.	Three coils solenoid wired in series so all coils work as one unit. Two coils are wound to buck each other resulting in signal strength losses and significant heat generation.	Two pumps force water streams to collide in a side-stream unit. Excessive power is required.	Uses proprietary water softener chemistry and concentrated salt solution regeneration. Requires operating equipment above pH imitations set by tower manufactures.
Environmental Concerns	If blow-down is not reused, some water is discharged down the drain.	If blow-down is not reused, some water is discharged down the drain. Higher energy consumption.	If blow-down is not reused, some water is discharged down the drain. Much higher energy consumption.	Highly corrosive drift can damage equipment, remove paint and etch glass. Water discharged during regeneration contains high levels of salt, calcium, and magnesium. Some cities have banned water softeners. Resin discarded to landfill every 5 years.
Footprint (10" system / 800 ton)	13" x 7.75" x 5.5"	16" x 16" x 10"	31" x 42" x 65"	60" x 24" x 70"
Compliance Standards	CSA and UL	UL on 1"- 6" PVC for indoor mounting of reaction chamber only for extra charge.	UL	UL
Warranty	Material defects and workmanship 3 years.	Material defects and workmanship 1 year. Extended warranty only upon entering into a service contract with representative.	Material defects and workmanship 1 year.	Material defects and workmanship 1 year
System Pipe Diameter	Sizes 1"- 36"+	Sizes 1"- 16" (no 14"), PVC, Stainless Steel (1"- 3" only) Standard with plain ends, flanges are optional and shipped loose.	Sizes 1" - 36"+	Sizes 1 - 36"+
Power Supply	Standard Class II protected power supply that can accept the widest range of input voltage, i.e. 85 to 264 VAC in put, 47 to 63 Hz.	Proprietary switching power supply provides for 120 VAC for 1" - 6" units and 230/208 VAC/1 ph for 8" - 16" units (option for 480 VAC/1 ph available.)	Power supplies require factory assistance for replacement.	Power supplies require factory assistance for replacement.
Hardware Maintenance	None	Internal cleaning and change of filter is required due to vented enclosure.	Frequent maintenance is required.	Expensive service is required including storing and loading water softening chemistry.
Tuning	Tuning is performed during startup.	There is NO capability to tune or adjust signal to compensate for interference due to piping near the coil or operating conditions.	N/A	N/A
Weather Resistance	Weatherproof and corrosion resistent IP66 or NEMA 4x enclosures are standard.	NEMA 3R ventilated Stainless Steel enclosures are standard. Hose washing not advised due to ventilation fan. Ventilated coil assembly requires fabricated weather shielding for outdoor applications.	Weatherproof and corrosion resistent NEMA 4x enclosures are standard.	Weatherproof and corrosion resistent NEMA 4x enclosures are standard.