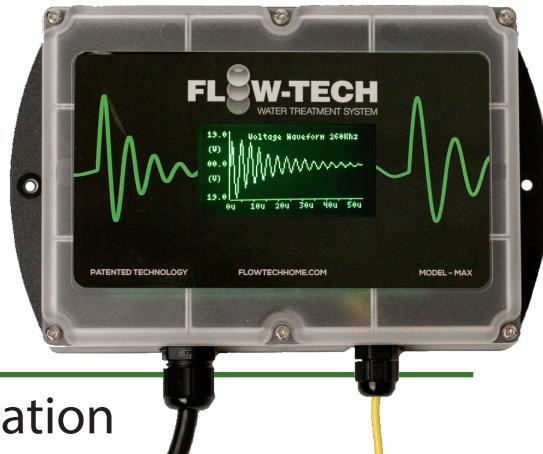


Flow-Tech Home Technical Data Bulletin



Signal Propagation and Nucleation

Flow-Tech Home MAX generates an electromagnetic field (power is less than 15 watts) in the 80-300khz frequency range that is induced into the water of the entire plumbing system and creates a diminishing sine wave. That sine wave randomly cycles on and off thousands of times per second. (Any interference from this signal, under normal circumstances, will only travel an inch or so outside a conductive pipe.)

The effect is a disruption of the layer of water molecules around calcium and carbonate ions. This allows the positive calcium ion (cation) to join with the negative carbonate ion (anion) to form a calcium carbonate particle that acts as a "seed crystal".

The system is capable of producing billions of these nucleation events per second throughout the plumbing system. When heat or pressure changes occur and the solution becomes super saturated, these seed crystals start to join and form clusters (Homogeneous Scale) that continue to grow in suspension, instead of forming Heterogeneous Scale (build up) on plumbing surfaces.

While metal piping is required for signal conduction, the complete make-up of the plumbing system (copper, cpvc, pex, etc.) is irrelevant as the signal travels in the fluid. Generally there is accessible metal piping at the water heater per code in most markets. If no metal piping is accessible then a 12 inch piece of pipe can be plumbed inline on the cold water main and hot water line out of the water heater.