3-minute Smart Water Treatment Technology

3-minute smart water treatment is a water treatment technology that uses fiber bundles in a fiber filtration system to quickly and effectively filter out substances that cause high turbidity and pathogenic microorganisms.

Compared to traditional Rapid Sand Filtration (RSF) which requires 5 hours, the 3-minute Smart Water Purification process utilizing Precision Ceramic Fiber (PCF) filtration technology offers multiple benefits: dramatically reduced treatment time, a compact design at 1/100 of conventional size, a shortened construction period, and reduced construction and operational costs.

▲ The water treatment center at Kolon Industries' Gumi plant (14,400 tons/day) purifies water in just 3 minutes using fiber filtration systems.

Issues to Tackle

- Prevention of water quality incidents caused by turbidity, algae, and pathogenic microorganisms.
- Need for village-level water purification facilities in areas where large-scale water treatment facilities are difficult to implement.

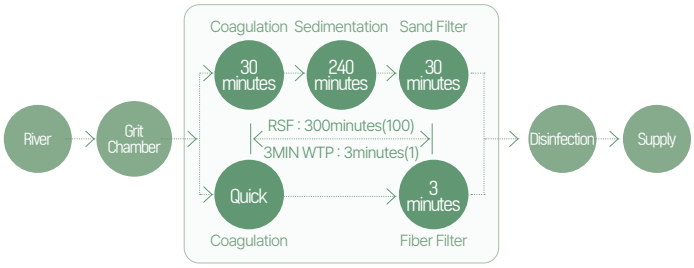
Expected Benefits

- Securing economic efficiency with a 1/100 reduction in production time, 1/100 in facility size, 1/3 in construction and operation costs, and 1/5 in construction period compared to the existing rapid sand filtration method.
- Improvement of living standards and health promotion through affordable and safe tap water supply to Southeast Asia, Africa, South America, and other regions with low water supply rates.

Key Services

· Raw water and coagulant undergo rapid mixing through a line mixer, followed by direct filtration using Precision Ceramic Fiber (PCF) filters for tap water and industrial water production, and RO pretreatment for seawater desalination.

· Enable the construction of smart water treatment plants capable of remote operation and monitoring.



Use Cases

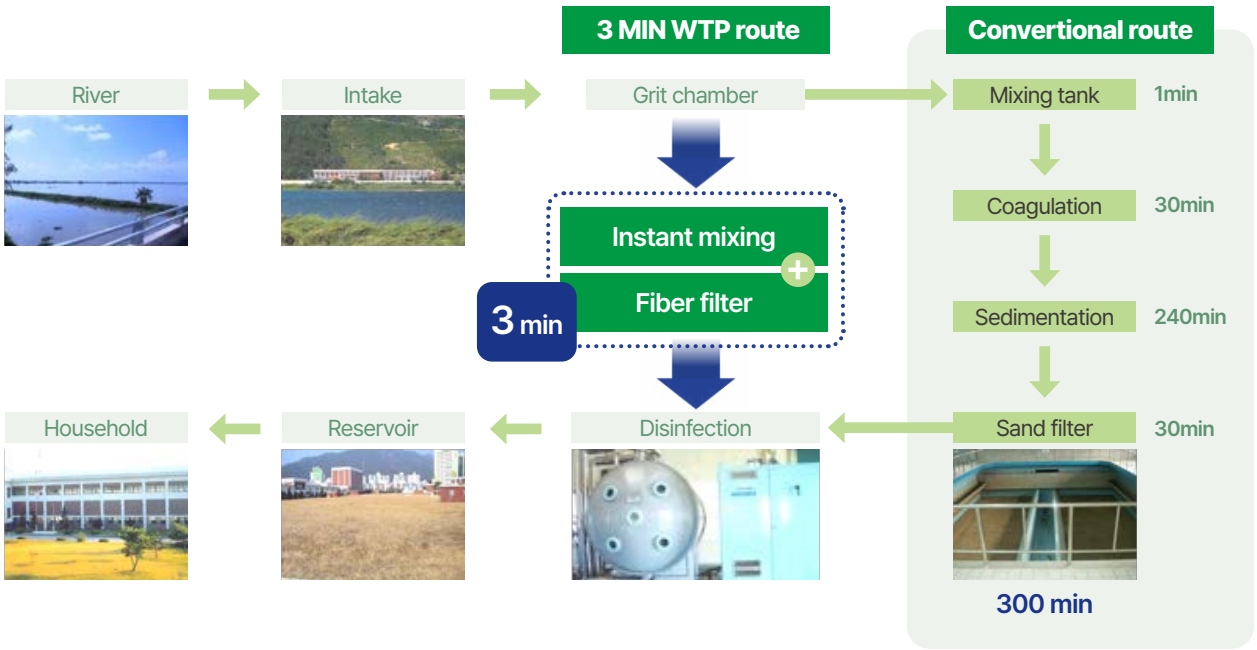
· Public sectors including: Asan Gongse-ri Water Treatment Plant and wastewater reuse in Youngheung Power Plant use this smart water technology.

· In the private sector, introduced by POSCO, Samsung Electronics, and others for water purification, wastewater treatment, stormwater reuse, and RO pretreatment.

· Overseas countries use this technology as well. Thailand's Prachinburi 304 Industrial Complex Water Treatment Plant, Japan's Kumamoto Mitsubishi Chemical Water Treatment Plant, Indonesia's Cirebon Power Plant seawater desalination pretreatment facility, and Colombia's Manaure seawater desalination plant use the smart water technology.

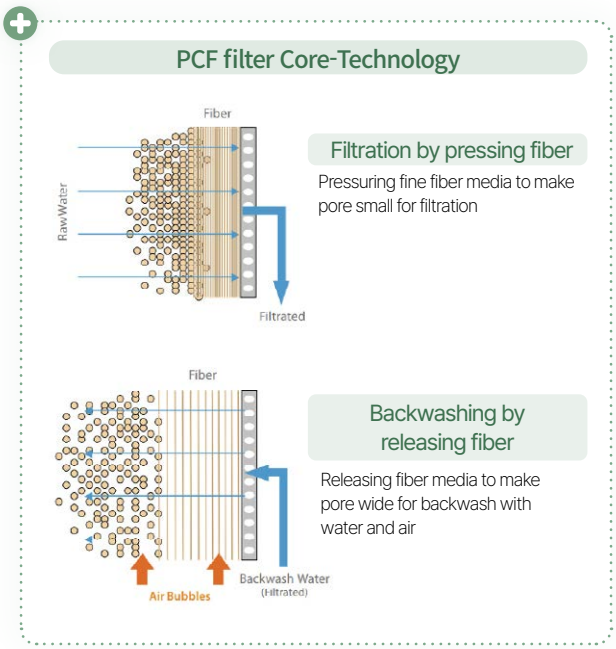
Key Components

Configuration



Technology

1. Fiber Filtration (PCF Filter) Filtration Process
   · Non-woven microfibers wrapped around a porous tube are compressed to reduce the pore size for filtration.
2. Pore Control Fiber(PCF) filter backwashing process
   · The fiber is loosened to enlarge the pores, and the filter is washed with air and water.
3. Remote operation and monitoring function
   · It is possible to verify normal operation via an internet connection.
4. Automated backwash control and precise chemical injection
   · When the preset filtration pressure, filtration time, and treated water quality are reached, backwashing and filtration processes proceed automatically, and optimal chemical dosage is automatically injected according to water quality.



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