

The difference between Moving bed and fluid bed technologies

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The difference between Moving bed and Fluid bed filters

At Head Squared, we have been asked many times "What the difference is between 'Fluid Bed' filters and 'Moving Bed' Filters?" This is a short article to explain the differences between the two.

Moving Bed Process

Moving bed process™ is trademarked by the company that manufactures K1, K3 and biochip media (amongst other products). The moving bed process™ describes the action of K1 or K3 filtration media being propelled with air during the nitrification cycle (the process of turning ammonia to nitrite to nitrate). In moving bed technology (as in Nexus Filters), water is propelled/passed through the filtration media by a circulation pump. The key difference between the two processes is that in the Moving Bed Process™, air is added by means of an air pump. This air forces the slightly buoyant media to circulate, thus creating a good filtration environment for the dirty water. The filtration media is kept in a dissolved oxygen rich environment, which helps the growth of aerobic bacteria ('good bacteria'). This also means that if the circulating pump is switched off, as long as the air pump is left running, the Moving Bed Process™ continues. The filter bacteria will continue to survive in a healthy environment waiting for more food (dirty pond water).

Fluid Bed Technology

Fluid bed technology is driven solely by water motion (without the use of an air pump). The media is commonly coral sand. Water flows into the filter from the base of the unit. This propels the sand into suspension where it filters the dirty water. No extra air is normally added; as a result, the dirty water may be in a near anaerobic state (i.e. containing only a limited amount of dissolved oxygen). If the source water/pond has no additional aeration, the fluid bed unit can therefore act in an anaerobic fashion, which may be detrimental to pond inhabitants. Unlike the Moving Bed Process™ if the circulating pump is turned off, all filtration is stopped instantly. If the water pump is switched off for any length of time, the filter bacteria will die due to a lack of food and air.

Summary

Moving bed technology is driven by air. A circulating pump is used to drive the dirty water through the media and thus become biologically clean.

Fluid bed technology uses water (without the use of an air pump) to drive the media and pass the dirty water through the filter, in one motion. This one process is used to do both jobs with no air added as standard.