

BALEEN'S DISRUPTIVE ONE TO FOUR STEP METHOD

Contaminated water typically requires complex, energy-intensive treatment in order to realise 'fit-for-purpose' water re-use opportunity. But not so, when employing Baleen's unique micro-screening capability for inline clarification of virtually any water source – irrespective of industry or application.

Baleen Filters Pty Limited incubated from the University of South Australia in 2004 following an intensive five year commercialisation program spanning various industry sectors. Almost ten years on, the company has successfully delivered some 200 installations across the globe. Its technology, marketed under the same name, provides for both separation of water borne constituents and microfiltration for stepped improvement in water quality. As a consequence of growing market acclaim, Baleen has won numerous international technology awards, and is also a two time winner of the Artemis Top 50 Water Company award held annually in San Francisco.

Float, sink or "in-suspension", any matter distinctly different in density or viscosity to that of water can be claimed for "selective" separation by Baleen. Baleen offers water treatment practitioners a simple, yet well-engineered approach to drastically reduce energy and chemical requirements in separation of water-borne constituents in lieu of, or in complement with, traditional bio-physico-chemical approaches to water-treatment or byproduct-recovery.



A Baleen filter installed for Algae recovery

The Baleen filter is based upon a simple, yet ingenious 'double-act' of high-pressure, low-volume sprays, one of which dislodges material caught by the filter media, while the other sweeps it away. As water flows through the filter, substances initially suspended in the water are left behind but before they are allowed to accumulate the 'double-act' periodically affects their removal from the filter for collection.

Baleen side-steps the need for 'backwash' (common to conventional self-cleaning 'dead-end' filters) by focusing its self-cleaning functionality upon maintenance of screenings flow across the filter-media rather than filtrate-flux through the filter, virtually persuading the

suspended matter to shearout of suspension, and thus ensure undisrupted filtration to as fine as 20-micron.

The Baleen filter is currently manufactured from 304SS (standard), 316SS or Duplex (options) materials of construction. There are four product model-types currently available across four sizes of filter spanning retro-fit, user-install, stand-alone or connect-and-use options; the largest filter-unit being capable of filter-flows as high as 1ML/hr subject to application requirements.



A Baleen filter installed for RAS recycle

Installation prerequisites comprise; level foundation or platform, on-demand connections of compressed air, power and mains (or reclaimed water) for utility supply purposes, and solids handling means (for collected screenings). Other considerations may include upstream balance tank provision, monitoring instrumentation or containment provisions.

Preventative maintenance (by semi-skilled operator) though of limited requirement is recommended (quarterly) to ensure optimum ongoing performance and reliability. Product and System pricing starts at \$25,000 with annual maintenance costs often less than 1% with an operating-life exceeding 15-years.

The Baleen filter can be used as a single step for absolute separation of suspended constituents from water to as fine as 20-micron (1/25th of human visibility) to readily realise agricultural, mining and industrial water re-use and byproduct recovery opportunities alike. Examples include fruit & vegetable packers where in-process washwater recycling delivers water-savings greater than 95%.

When coupled with an upstream physico-chemical process (for example coagulation, flocculation or absorption), enhanced separation performance is realised to as fine as 1-micron, resulting in 'clarification' of final water quality to realise 'fit-for-purpose' re-use opportunities. Examples include meat & by-product processors and small community effluent treatment plants where end-of-pipe clarification (in lieu of energy-intensive aerobic treatment) can deliver energy-savings greater than 95%.

Reclamation applications requiring use of alternate physico-chemical processes (such as precipitation, adsorption, oxidation or disinfection) also directly benefit from Baleen micro-screening. Examples include metal precipitate separation and ion-exchange resin recovery to deliver plant footprint-savings greater than 95%.

A Best-Available-Technology approach to water reclamation may thus be defined quite simply by a 'One to Four Step Method' outlined as follows; 1) visible to sub-visible matter recovery by first-stage Baleen micro-screening (to outperform any clarifier), and/or 2) physico-chemical treatment, to facilitate 3) sub-visible to colloidal matter separation by secondary Baleen micro-screening (to outperform any flotation plant), followed by 4) oxidation/disinfection of residual constituency.

However, Baleen need not be considered an alternative approach to water treatment or resource recovery, many clientele simply benefit from increased plant efficiencies as a direct consequence of Baleen's enhanced separation capability. Capital payback on installation is often less than 2-years within food & beverage applications, 1-year for municipal applications and just months in minerals processing.

Baleen filtration systems may be applied to applications as small as 20-kL per day and are equally scalable for the very large well beyond 20-ML per day



Three Baleen filters installed at a Poultry Abattoir

Repeat clientele include Inghams, Tyson Foods, JB Swift, Nestle, Chevron and Anglo American.

Repeat applications include washwater recycle, pond replacement, DAFF enhancement, backwash reclamation, clarifier polishing, resource recovery, sludge thickening, water re-use and membrane protection.



Baleen Filters
protect recover recycle re-use

For more information please visit our international website at www.baleen.com