

### Unique Filtering Process

The Baleen filter technology, protected by international patents, is based on a simple, yet ingenious 'double-act' of high pressure, low volume sprays, one of which dislodges material caught by the filter screen media, while the other sweeps it away for collection.

*As water flows through the filter, substances initially suspended in the water are left behind by the filtrate, but before they are allowed to accumulate and blind the filter's screen, the 'double-act' effects their removal from the filtering zone thereby sustaining the filtering process.*

The principles of operation rely upon the response of particle (and droplet) dynamics to fluid flow within a non-pressurised, open system. Continued reliability of the Baleen filtering process is achieved by 'state-of-the-art' process control to ensure trouble-free coarse screening to 250-micron, micro-screening to less than 100-micron and micro-filtration to less than 5-micron (when using chemical assistance). The Baleen filter is especially effective in water treatment approaches where waterborne materials were previously regarded as problematic to conventional screening and filtration processes.

### The Benefits of Screening

Screening was one of the earliest methods for removing contaminants from wastewater. In modern wastewater treatment plants both coarse and fine screens can be found. The types of screen in common use are the bar, trash, slotted, wedge and woven wire designs, the size of aperture or opening determined by analysis of wastewater composition and flowrate. The bar and trash screens are effective in removing gross pollutants, while slotted screens offer the ability to remove less coarse material but are rarely found with openings less than 5 mm due to inherent blinding problems. Wedge wire screens are the next advancement in screening and have generally offered the ability to remove material as fine as 1 mm. These types of screen may result in BOD and SS removal in the order of 25 to 35% and are becoming more commonly used in pre-treatment service.

While the list of finer screening and filtration technologies available on the market is indeed numerous, none appear to match the reliability and performance of the Baleen filter as the next advance in fine screening when applied across industry. The Baleen filter with its unique combination counter and clearing flow system is able to remove both visible and non-visible pollutants from wastewater streams. In turn, the Baleen filter offers extended opportunity for improved odour control and surprising improvements in water quality, with BOD and SS reductions often as high as 75 to 95%. It is not surprising to find why screening is a fast growing industry that barely existed more than a decade ago.

### Performance Features

The Baleen filter is capable of relatively high flowrates and readily offers continuous screening of wastewater constituents from 'free' water. For rich organic streams in excess of 10,000 ppm of suspended constituents, such as those found in the food processing industry, the Baleen filter can handle up to 10 litres per second at approx. 50 micron per square metre of filter screen media, and may remove in excess of 75% of suspended, settle-able solids. For dilute wastewater streams containing less than 1,000 ppm of suspended constituents, such as those found post secondary treatment or as 'grey' water, the Baleen filter can handle upto 50 litres per second at approx. 50 micron per square metre of filter screen media and thereby offers a reliable, cost effective means to further treatment, disposal or re-use.

A key practical advantage of the Baleen filter over conventional separators and filters lies in its ability to continuously remove troublesome contaminants (to a given micron rating) at high, and variable solids loadings. A key competitive advantage lies in Baleen's relatively low capital and operating costs while maintaining a simple, reliable and effective means to water treatment. Due to the Baleen filter's open system design and passively applied fluid dynamics the Baleen filter can separate and collect solids as a 'natural' mass, typically of spade-able consistency with minimal water retention. Primary performance features include: 100% removal of visible (to human eye) solids from raw influent streams; and, upto 100% removal of BOD and COD (and recognisable TDS e.g. proteineous and gelatinous mass viz. meat & byproduct industries) in suspension. The added ability of the Baleen technology to separate highly hydrated semi-aqueous matter from water, such as 'floc' without gross detrimental effect to 'floc' structure is truly a revolutionary feat. As a direct consequence, the Baleen filter offers an alternative inline approach to conventional DAFF technology, and in some cases its displacement.

### Product Features

The Baleen filter is a highly efficient, non-pressurised self-cleaning filter and separation technology that offers reliable, absolute trouble-free filtration to 25 micron (1/16<sup>th</sup> of human visibility) and is currently manufactured in either 304 (as standard) or 316 (as option) grade stainless steel. Filter screen media is of a woven type and available in either 316SS material, or polymer grade selections for extra durability and special food-grade applications. Screen media life cycle is typically more than 3 to 5 years depending upon application and represents less than 5% of the capital cost of the product. There are three primary product ranges available, more specifically: the stand-alone 'connect and use' design series; the standard tank-mountable, and budget tank-mountable 'user to install' design series. Both designs offer a number of filter unit sizes based on area of filter media, ranging from 0.5 to 3.0m<sup>2</sup>, equating to an installation footprint from 1.5 to 3.5m<sup>2</sup> respectively. All Baleen filter units are compact and modular in design (for either series or parallel installation) and application is not necessarily limited by flowrate. The range of filter models and unit options available provide flexibility in cost and functionality and ensures that the technology remains affordable for both small and large applications. *The Baleen Filter is Australian made.*