

Industrial Applications for Acme Automatic Scraper Strainers

Background:

The market niche for ACME scraper-strainers is for screen openings larger than .003 inches or 75 microns and goes up to a high end of 6 inch or 150mm particles. At the finer straining end of the ACME line, there is an overlap with the upper end of backwash-type strainers of various designs. As particle sizes grow larger, backwash units fail to compete because the contaminants will either jam up the backwash system or remain in the body of the strainer, requiring manual removal and interruption of the process flow.

Automatic strainers save substantial labor costs when compared to manually-cleaned strainers and ensure continuous, uninterrupted flows even during blowdown cycles. The following is a summary of potential applications for our units.

Water Filtration Intakes

Water intakes on lakes and rivers serve many purposes, from process to cooling tower applications. The water is contaminated by leaves, plants, bark, sand, gravel, and pollutants from upstream facilities. An ACME scraper-strainer will eliminate the above, either acting as a main filter or a pre-filter for finer filtration processes which would quickly clog up if exposed to the full spectrum of contaminants.

Discharges

Many local, state and federal regulations prohibit the discharge of contaminated wastewater into sewer systems, lakes or rivers. As well, many waste water treatment plants are now requiring polluters to perform some kind of pretreatment on-site prior to discharge, regardless of the volume involved. An ACME scraper-strainer will automatically remove the particles from the flow, to be passed on to a filter press or other equipment prior to disposal.

Process Equipment

ACME scraper-strainers can filter liquids to heat exchangers, condensers, cooling systems, etc. All these process applications require filtration to eliminate scale or other foreign matter from accumulating in the system and clogging up the equipment. Tube and plate heat exchangers are particularly vulnerable to solids buildup. As well, the clogging of spray nozzles can be prevented by installing an automatic strainer in the supply or recirculating line.

Cooling Towers

Whatever their application, the water sprays act as air cleaners, collecting all sorts of contaminants from the air stream. An automatic strainer, installed in the main or bypass lines will eliminate the accumulated debris and avoid the contamination of the heat transfer surface, permitting consistently higher heat transfer rates and extending the life of cooling tower fill, whether metal, PVC or cement fiberboard.

Food and Beverage Industry

The preparation of juices requires the elimination of seeds, pulp, skins and other fruit remains through straining and filtration stages in the process. Contaminants in syrups, oils, fats, and other food fluids can be eliminated through straining at the beginning or end of the process.

Pulp and Paper Industry

There are several possible applications in pulp and paper plants:

Black liquor to recovery boilers has to be filtered to avoid nozzle clogging and blocking;

White water effluent has to be filtered before discharging into the water stream, or before reuse elsewhere in the process.

Some intermediate processes, such as paper coating, require fluid filtration prior to being passed on to the paper machine.

Power Companies

Every power generation facility uses water for cooling of bearings, cooling towers, fire systems, etc. The filtration of river water is essential to avoid line clogging and equipment damage. In some locations, fly ash or ash in general is washed out using water sprays and an ACME scraper-strainer can collect the large particles in an accumulator, while smaller particles are sent on to filter presses.

Cosmetics and Pharmaceuticals

Some of the lumps or foreign contaminants in lotions, creams, ointments, inks of relatively low viscosity can be filtered with no special precautions. Flows of higher viscosity products may require jacketed filters to heat the fluid and improve flow rates. For the cleaning of fibrous material or clinging contaminants, ACME scraper strainers with steam injection are available for very efficient cleaning of fine screen applications.

Chemical and Oil Industries

The separation of solids from liquids is a constant problem in these industries at the intermediate production levels. The choice of material used for the strainer body must be carefully considered for each application due to the possibility of corrosion. Special interior linings are often required to protect the body from premature wear. The viscosity and chemical properties of the liquid might require that the strainer be jacketed for heating or equipped with steam or compressed air for thorough screen cleaning.