



Pumping and mixing solutions for Water & Wastewater Treatment

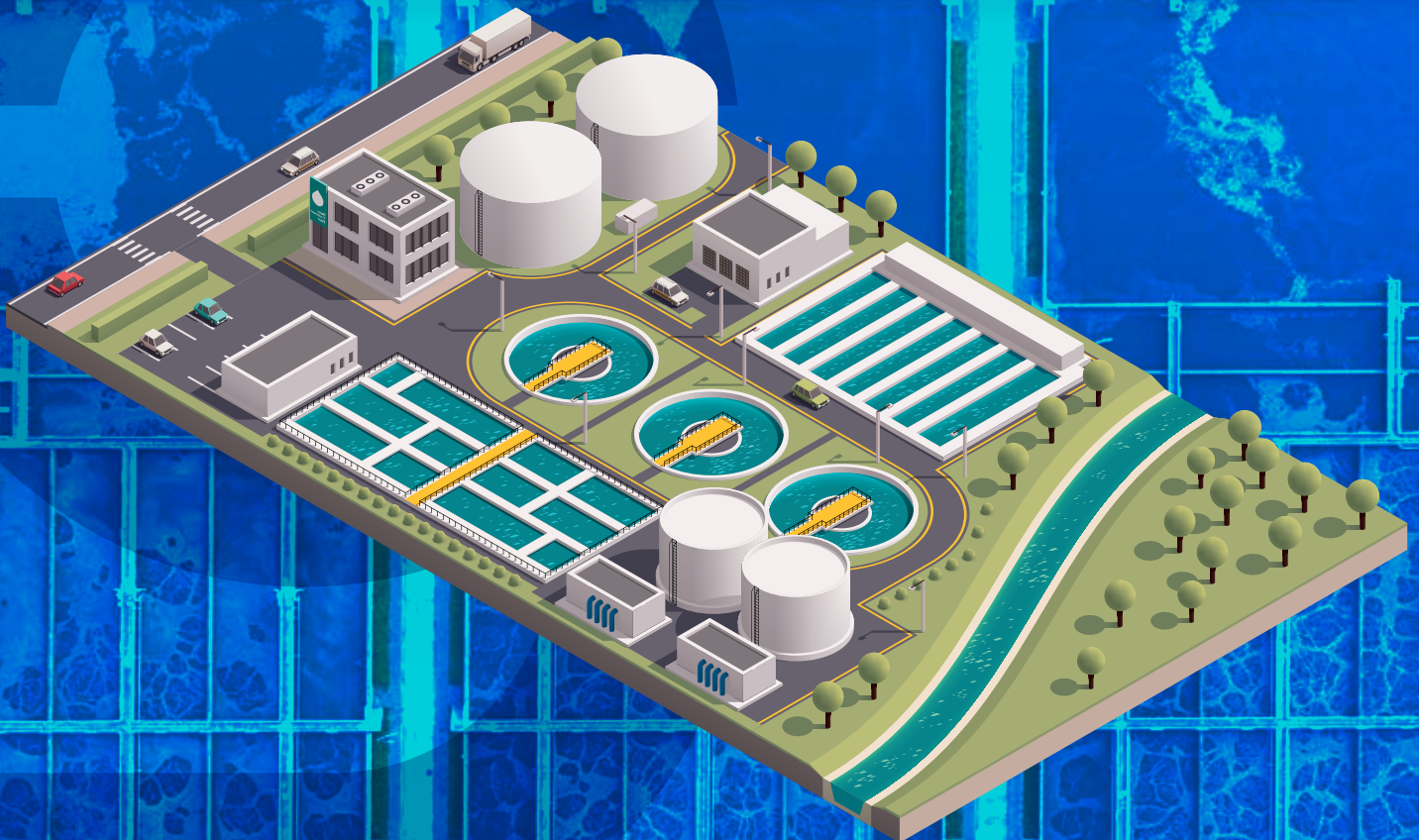
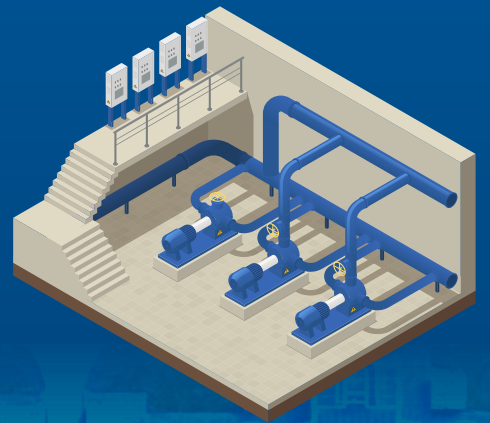


EBARA
HAYWARD GORDON

Low maintenance, high efficiency pumping and mixing solutions

We all depend on a reliable supply of clean water, so whether it's water treatment or wastewater treatment, our pumps and mixers have been providing water process solutions for over 70 years. Hayward Gordon designs and manufactures a broad range of pumping and mixing equipment that can be applied throughout both treatment plant processes.

Our dedicated application experts work closely with you to assess your operation, determine the best process solution, and deliver the exact equipment you require. We can ensure you get the proper equipment and the best results using in-house software, computation fluid dynamics flow analysis, and lab testing.



Pumps

THE PROPER EQUIPMENT GETS THE RIGHT RESULTS

Our heavy-duty pumps efficiently transfer sludges with consistencies up to 8% solids concentration and pass a sphere size up to 8" in diameter. Alternatively, we can provide chopping action to eliminate downstream clogging of nozzles, heat exchangers, valves, and other equipment. If highly abrasive grit is your problem, we have the solution in a specially designed recessed impeller pump. All wetted components are extra heavy construction with hardened steel, high chrome iron, Ni-Hard, or Super Ni-Hard materials to ensure long, trouble-free service life even in the most demanding applications.

Our equipment is state of the art for handling sludge. Whether the pumping application is sludge transfer, sludge mixing, return activated sludge (RAS), or waste activated sludge (WAS), we have a pump designed for that application.

CHOPX Chopper

The CHOPX series chopper pumps perform the dual function of cutting and pumping, making them ideally suited for applications requiring reduction of solids size and protection of downstream equipment.

The proven clamp type construction, typical to all our solids handling pumps, permits the entire wet end to be manufactured in wear-resistant hard metals to ensure maximum component life in abrasive services.



PUMP APPLICATIONS:

CLARIFIER SCUM – Scum pits require pumps to handle all the material from the top of the clarifier, including hair, latex, and plastics, without plugging.

CHOPX pumps quickly chop and pump this material without clogging.

A recirculation nozzle assembly is often combined with the chopper pump to thoroughly mix the pit, incorporating floating scum blankets, suspending solids off the pit floor, and even washing down the pit walls.

DIGESTER RECIRCULATION – Pumps increase digester efficiency by recirculating and mixing the tank contents.

CHOPX pumps are used when the clogging of heat exchangers or mixing nozzles is possible by continuously chopping woven, stringy, and agglomerated solids.

XCS pumps effectively recirculate the digester sludge, passing all solids (including stringy materials) without clogging and at very high efficiencies.

Pumps

PUMP APPLICATIONS:

LIFT STATIONS – Due to remote locations, it is imperative that the raw incoming sewage be pumped reliably without clogging.

CHOPX pumps often replace standard non-clog pumps, especially in challenging lift stations such as prisons, hospitals, restaurants, and other institutional and public facilities.

SEPTAGE RECEIVING – Raw concentrated solids from septic tanks create a severe pumping environment with high clogging potential.

CHOPX pumps efficiently deal with rags, plastics, and other difficult-to-pump solids, which can clog different designs.

SLUDGE TRANSFER – Sludge consistencies vary considerably. Therefore, reliable pumping must be achieved on heavy and light sludges.

XCS pumps are employed when the passing of the sludge is all that is required.

CHOPX pumps are used when the potential for downstream clogging of other equipment exists.

XCS Screw Centrifugal

The XCS screw centrifugal line of pumps offers a unique set of advantages for handling thick sludges, large or stringy solids, shear-sensitive fluids, and delicate materials. The XCS combines the benefits of a screw pump with the advantages of a centrifugal pump.

The open channel of the screw centrifugal impeller combines gentle, clog-free pumping action with high efficiency and non-overloading characteristics.

Hard metal wear-resistant construction is available when abrasives are present.



An XCS Screw Centrifugal Pump Case Study

A city's existing non-clog pumps were doing the opposite, clogging, and doing so on a very regular basis. The time involved in cleaning out the pumps was frustrating enough, but it was also pulling personnel away from the more productive work of increasing plant efficiency and reliability. In addition, the non-clog pumps required a significant yearly budget to replace all wearing components.

To convince the plant personnel that a screw centrifugal pump was the answer to their problems, Hayward Gordon supplied a trial XCS-12 to "use and abuse." In relatively short order, the plant was convinced that the XCS pumps would be a vast improvement and began referring to these pumps as "the clog-free design." Over the last few years, they have purchased 30 of these pumps, and to date, "the only maintenance required so far has been routine preventative maintenance."

TORUS Solids Handling

The TORUS series of solids handling pumps feature an impeller completely recessed into the rear section of the volute, out of the flow path of the material being pumped. This allows the passage of any solid equal to the pump's discharge size.

In addition to handling large solids, the TORUS pump is ideally suited for highly abrasive applications where low particle degradation is required for slurries with gas entrainment or for stringy or fibrous materials.



PUMP APPLICATIONS:

RAS / WAS – High flows at a low head are characteristic of this application requiring pumps to pass all solids encountered without clogging.

XCS screw centrifugal pumps are ideal for this application having unmatched hydraulic performance and solids passing capability at very high efficiencies.

GRIT – Pumping high concentrations of highly abrasive silica grit content is the challenge of this application.

TORUS recess impeller pumps are provided in Ni-Hard (500 BHN) or Super Ni-Hard (650 BHN) construction to withstand this harsh environment and to provide long life.

DELICATE FLOCCULANTS –

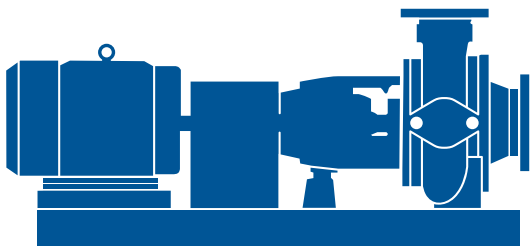
The XCS screw centrifugal pumps' low shear characteristics make this pump the best choice for transferring delicate flocs from the flocculation basin.



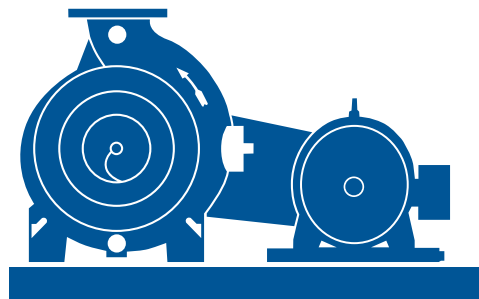
Pumps

DRIVE CONFIGURATIONS

In addition to the arrangements shown, Hayward Gordon pumps can be manufactured in custom configurations.



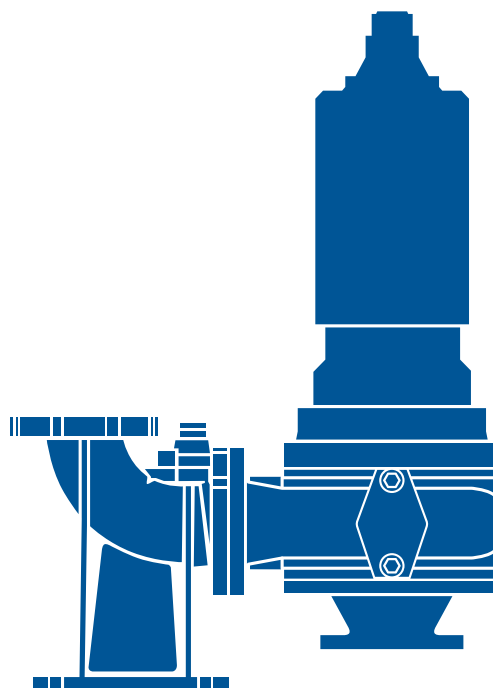
Direct Drive



V-Belt



Vertical Dry Pit



Submersible



Hydraulic Mixing System

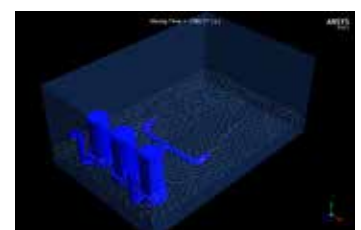
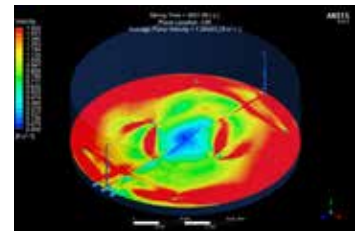
HydroMix® - PUMPING AND MIXING IN ONE EASY SYSTEM

We completed the union between the pumping and mixing experience by developing HydroMix®. As a hydraulic mixing system, the HydroMix utilizes a Hayward Gordon solids handling pump to recirculate and discharge tank contents through nozzles strategically placed within the same tank. Energy discharged from the nozzle jets causes the tank's volume to turnover and initiate a mixing pattern based on bulk flow movement.



ADVANTAGES :

- Blending times of 120 minutes or less
- Tank active volume greater than 90%
- Optimum solids suspension and blending
- Foam & scum blanket suppression
- Trouble-free maintenance and operation
- Zero rotating parts within the tank
- Energy-efficient operation



Mixers



WATER TREATMENT MIXERS FOR EVERY APPLICATION

Our durable, reliable mixers deliver precise and powerful dispersion, de-agglomeration, dissolution, suspension, reaction acceleration, particle size reduction, homogenization, and emulsification critical in various water and wastewater applications.

Our mixer group can provide the appropriate mixer solution for your application. We have an experienced team of mixer experts to recommend the type of mixer and sizing for a particular application. We offer water treatment mixers for every application in the wastewater treatment process.

MIXER APPLICATIONS:

FLOCCULATION – Flocculation is the agglomeration of colloidal particles into a larger mass called “floc particles.” Agitation increases the opportunity for particle contact, improving the flocculation efficiency.

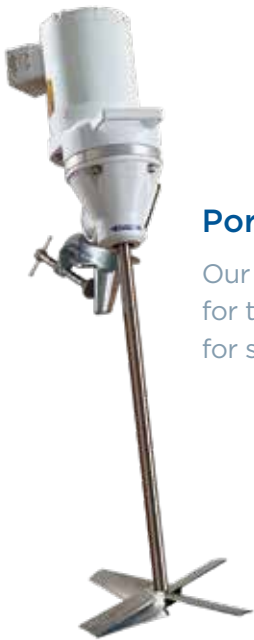
The AL hydrofoil is ideal for this application, promoting significant fluid movement and maximizing particle contact while minimizing shear and turbulence to prevent floc damage.

FLASH & DYNAMIC INLINE – Mixers are used to uniformly disperse chemicals, such as coagulant aids, chlorine, and sulfur dioxide, into the process stream in short retention times. These chemicals are added for solids removal, neutralization, odor & color control.

The conventional configuration is a top entry mixer in a rectangular basin with impellers selected to maximize dispersion while preventing short-circuiting.

Alternatively, a Dynamic Inline mixer, a high-speed mixer operating in a specialty baffle section of a similar-sized pipe as the process stream, can be used.





Portable Mixers

Our direct drive portable agitators provide high speed mixing for those jobs where greater shearing action is required and for smaller batch mixing.

HRF Top Entry

Our HRF series mixers handle agitation requirements in the transition area between the small top entering propeller and large turbine mixers. They are suited to many applications with moderate batch size, particularly where viscosity is high or where the process demands turbine performance characteristics.



ST Top Entry

ST reducers are engineered and manufactured specifically to withstand the demanding loads imposed on the drive by most mixing applications. The large bending moment created by the cantilevered mixing shaft and impeller is largely isolated from the gearing by the unique output bearing arrangement. All helical gearing with exceptional load-carrying capacity ensures a highly efficient and dependable transfer of energy into the process fluid.



MIXER APPLICATIONS:

CARBON MAKEUP – Adsorption removes the soluble and particulate impurities from the water by contacting the process stream with activated carbon.

Mixers are used to wet out the dry activated carbon into a slurry, maintain uniform suspension, and re-suspend the carbon after periods when the mixer has been shut down. Impeller selection is critical to accomplishing all of these requirements.

CHEMICAL MAKEUP – Polymers can be provided as either dry powder or in a concentrated liquid form. In either case, dilution is required before adding to the process.

Mixer sizing is based on viscosity, which has an extensive range; therefore, it is essential to know the polymer characteristics for each application.

EQUALIZATION /

NEUTRALIZATION – Flow Equalization is the damping of flow rate and concentration variations so that a constant or near constant stream is achieved in the plant. Neutralization is the process of blending acid or caustic into the waste stream to adjust the pH level of the basin.

Equalization mixers blend influents from various sources to provide a uniform consistency.

Neutralization mixers ensure proper pH levels are achieved before entering the subsequent process steps.



Mixers



MB Top Entry

Our MB Series gear box is designed for intermediate capacity fluid mixing applications. There is a large range of sizes available with output speeds to allow precise mixer selection for any process requirement. Combining this flexibility with the large number of impeller designs ensures the most efficient mixer for your exact requirements.

MIXER APPLICATIONS:

CHLORINE CONTACT – Chlorine is used as a disinfectant to rid the effluent of any residual microorganisms.

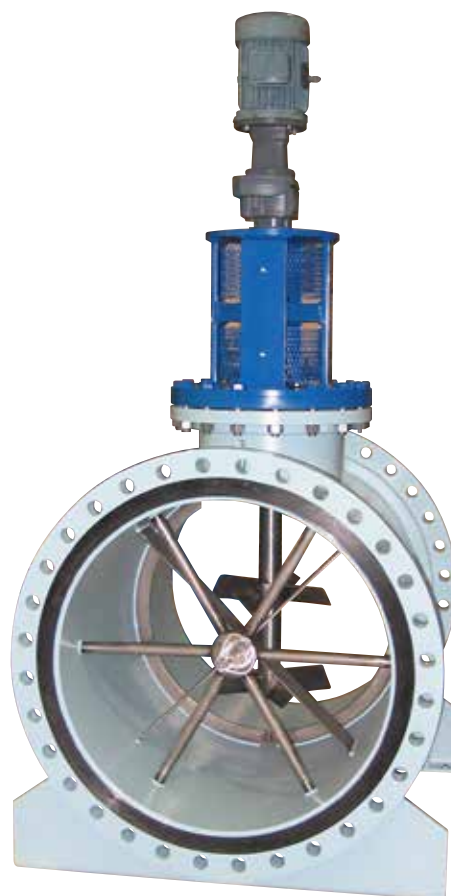
Mixers ensure that the added chlorine is thoroughly dispersed into the effluent stream for maximum effectiveness.

ANOXIC MIXERS – Anoxic zones facilitate denitrification using bacteria to convert nitrates to nitrites and finally to nitrogen gas, then released from the basin.

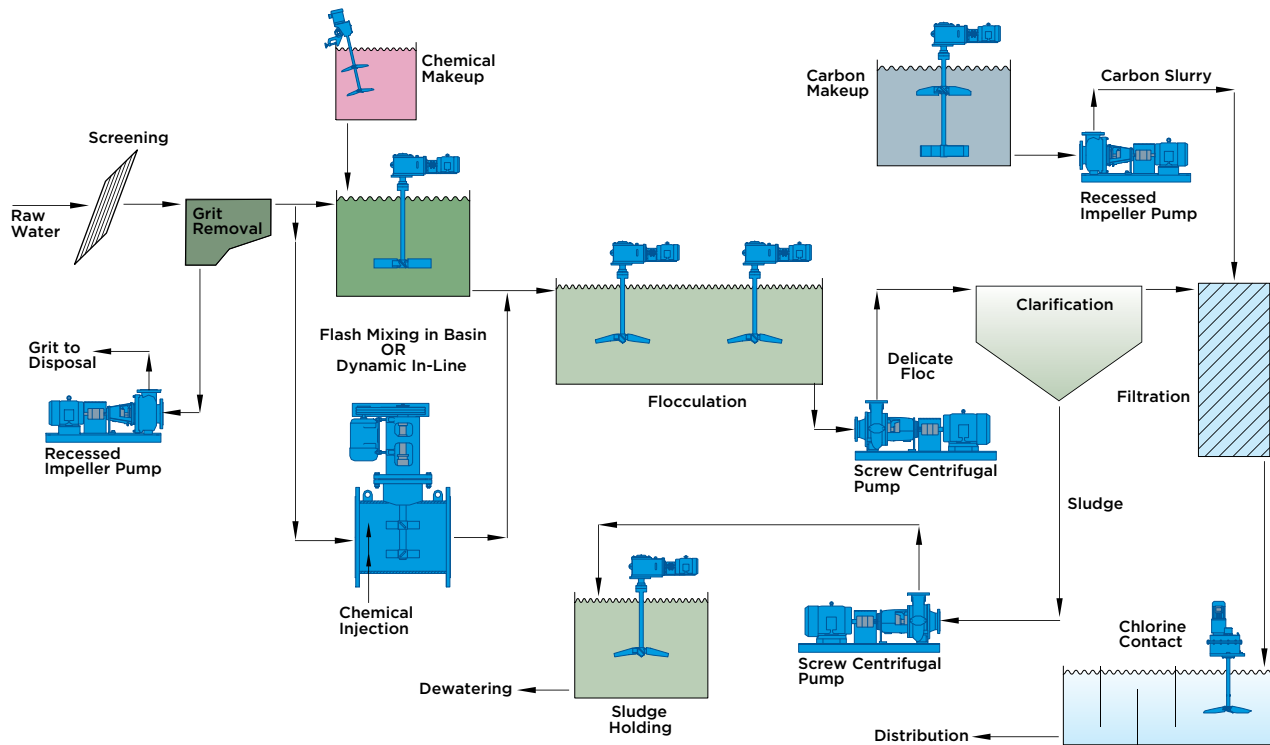
Agitation is required to blend the basin contents to increase process efficiencies.

Dynamic Inline

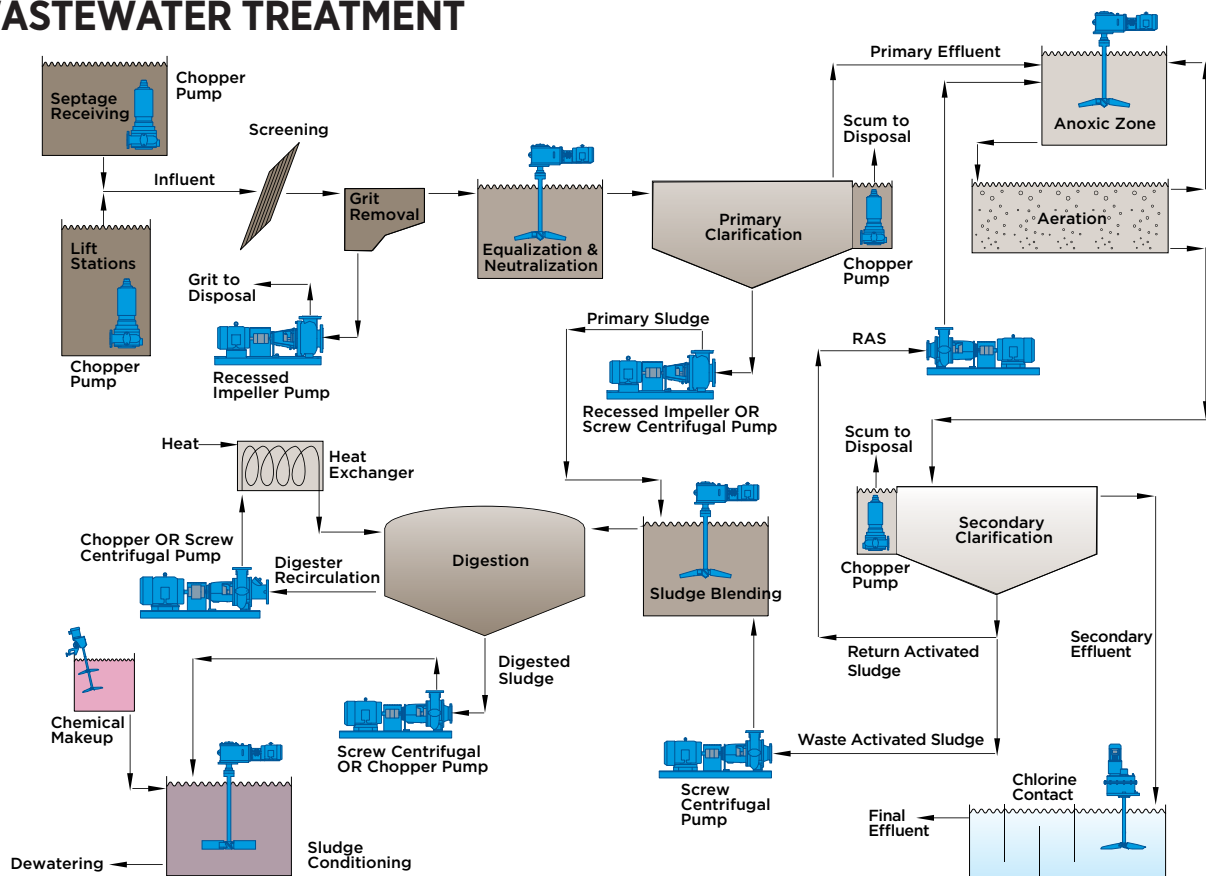
Our Dynamic Inline Mixing System ensures that any chemicals added to the processing pipeline are completely and uniformly dispersed throughout the flow stream. The dynamic Inline mixer replaces the need for a conventional tank, top entry mixer and associated mixer support structure. Applications which require additives to be “flushed” into a process stream can benefit from this system which comes with a small footprint.



WATER TREATMENT



WASTEWATER TREATMENT



For more than seven decades, Hayward Gordon equipment has been the premier choice for use in the water management, mining, chemical, energy, oil & gas, mineral processing, agricultural, food & beverage, and wastewater treatment industries.

Hayward Gordon never stops working for you. Dedicated sales professionals diligently strive to expand the market, while technical experts constantly develop and deliver new pumping and mixing technology.

We are totally committed to understanding and meeting your industry needs by supplying the experience and expertise you expect, by providing the solutions you need, and by delivering the service you deserve.

We are your perfect process partner.



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Pumps | Mixers | HydroMix®

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