

Clarifiers



WATEREX

Waterex has been designing and engineering clarifiers since 1959 for a range of industrial and mining applications. Waterex's designs are backed by our own laboratory capability and pilot clarifier plant allowing Waterex to continually develop state of the art technologies for specific applications.

Waterex clarifiers are designed to disperse flocculating and/or agglomerated solids efficiently into the settling zone. The feed system is carefully designed in order to achieve this efficient flocculation. Our designs have been proven capable of handling clarification of up to 125,000 mg/l ultra-fine solids down to less than 10 mg/l, typically 6 mg/l.

Clarifier diameters up to 35 m are available with the rake mechanism supported off a bridge. Waterex designs tanks and walls for upset conditions where the tank is filled with a density of between 15% and 45% solids above the normal underflow concentration as demanded by the application.

Clarifier Types

Waterex offers conventional clarifiers, Hirate clarifiers, lamella clarifiers, clariflocculators, solid contact clarifiers, deep cone and pin bed clarifiers.

Waterex deep cone clarifiers operating in counterflow are capable of producing an underflow with maximum solids concentration. These units have a smaller diameter than Hirate clarifiers but rely on higher side walls for high overflow clarity.

Waterex pin bed clarifiers are used when a very high overflow clarity is required from feed streams which on occasion may contain significant solids concentrations or ultrafine solids.

Applications

Waterex uses clarifiers to provide solutions for many applications including:

- Gypsum and ghost silica stripping
- Pregnant liquor recovery
- Light organic or gelatinous precipitate separation
- Scrubber water clarification
- Solids washing



Features

Baffled feedwells enhance flocculant mixing, conditioning and driving to provide use of the entire feedwell. Our feed box design minimises feedwell short circuiting and provides flip facilities for entrained gas release plus high intensity mixing eliminating layering.

Where called for proven autodilution systems are available at 3 times dilution with some results tested at 4.5 times. High rate autodilution is realised with the Waterex Hishear system providing a clarified central feedwell dilution stream which is augmented by a peripheral feedwell weir nozzle driven recovery which can be readily boosted by push mixing.

Waterex clarifiers also utilise the following features:

- Either hydraulic or electric drives to suit rake torque up to 1,250 kNm
- Rake drives with lift mechanism, standard rake lift height of 300 to 600 mm (900 mm on request) and high and low level switches
- Rake mechanism design offering minimum resistance while raking and a rotating picket fence to further enhance settling in sludge duties
- Drive units designed to eliminate servicing of the ring gear and raceway bearings
- Torque indicator and overload protection provided by hydraulic trip backed by hydraulic pressure relief bypass
- Overflow weirs with sawtooth and/or scum plate baffles plus optional bypass deflector baffles where difficult float feeds and the like are being processed
- Trench and cone scrapers such that the rake arm passes an outlet every 2 to 4 minutes. An additional trench scraper can be fitted to reduce dead time
- Instrumentation customised to suit client requirements and specifications ranging from a basic marshalling panel to fully automatic PLC control
- Steel work completed in small sections with bridges and rake assemblies fabricated in knock down and/or component form for ease of transport to site in containers

Materials of Construction

Waterex design clarifiers on an individual basis to suit the application. We can manufacture clarifiers in a variety of materials including: FRP, epoxy coated mild steel, galvanised mild steel, stainless steel 304, 316, 904, super duplex stainless steels SAF2205 and SAF2507.

