USFilter

Taking care of the world’s water.

SPIRACONE®:

SLUDGE BLANKET

CLARIFIER

FOR WATER

TREATMENT.
USFilter’s General Filter SPIRACONE is an upflow sludge blanket clarifier that combines mixing, flocculation, and sedimentation in a single treatment basin for maximum treated water production in minimal space. Raw water and chemicals are hydraulically mixed and then pass upward through distinct zones for reaction-flocculation, clarification, and sludge removal. Hydraulic mixing eliminates mechanical mixers, while the conical shape eliminates scrapers. The unit’s compact size reduces cost by minimizing land requirements, and the mixerless and scraperless design minimizes maintenance.

SPIRACONE OPERATION

Raw water and chemicals are introduced at the base of a SPIRACONE. The intricate design of the inlet structure aids in directing the influent flow in an upward expanding spiral without disturbing the sludge blanket. The velocity of the influent flow decreases as it progresses up through the increasing cross-sectional area in the SPIRACONE. Turbulence between the high velocity influent flow and the slower rising water forms a mixing zone.

As the flow progresses up through the unit, the rise rate becomes less than the settling velocity of the precipitating solids (floc). At this point, a sludge blanket forms which acts as a filter and catalyst, collecting small particles of sludge. Chemicals are given intimate contact with turbidity, solids and/or hardness in the water and the chemical reactions are forced to completion.

Settling sludge concentrates in the zero-velocity zone of the sludge hopper and is intermittently drawn off. The elevation of the sludge hopper is adjustable to maximize process efficiency. Heavier solids are removed from the unit through the grit blowdown connection. A start-up jet is provided to assist in re-suspending settled solids after a unit shutdown.

After rising through the clarification zone, the high quality treated water exits through the perimeter effluent launder and proceeds to the rest of the treatment plant.

APPLICATIONS
- Clarification
- Color Removal
- Iron Removal
- Softening
- Wastewater Treatment
- Phosphate Reduction
- Heavy Metals
USFilter’s General Filter SPIRACONE pilot unit can be installed at a specific location alone or in conjunction with other General Filter pilot units to finalize equipment or plant design.

The self-contained unit is ideal to verify process design, to evaluate full scale operation, or to estimate ancillary equipment requirements.

Also available are pilot plants for iron and manganese removal; a variety of MULTIWASH filter plants; Aerator for removal of dissolved gases; CONTRAFLO Solids Contact Reactor; and SURF for treating surface water. In addition, we have an instrumentation skid and chemical feed skid available to help with your equipment design.
If it's in the water, our engineered processes and equipment can take it out, economically and dependably. Our comprehensive line includes solutions to simple and complex water treatment and conditioning needs, all backed by working installations and years of experience. Our line includes:

- Adsorption Clarifiers®
- CONTRAFLO® solids contact clarifiers
- SPIRACONE® sludge blanket clarifiers
- Sludge Sucker™ sludge removal system
- Sludge thickeners
- Vertical and horizontal pressure filters
- AERATORS
- AERALATER® packaged treatment
- Microfloc® Trident® packaged water treatment
- MULTIWASH® Filtration Process
- Gravity filtration equipment
- MULTICRETE II® monolithic under-drain system
- ESSD™ filter washtroughs and launder systems
- Memcor CMF Microfiltration System

USFilter products and processes are protected by U.S. Patents, several foreign patents and other patents pending.