

## Water Solutions

# Cyclone Clarifier: Solid/Liquid Hydrocyclone

### More Than a Water Treatment Company, an Established Leader in Oil/Water Separation

Siemens Water Solutions offers a complete range of filtration products to remove solids from liquids, from conventional media filters to the latest generation of compact solid/liquid hydrocyclones - the cyclone clarifier.

The cyclone clarifier provides maximum separation efficiency for the smallest space impact of available technologies.

#### Principle of Operation

Hydrocyclones operate under pressure, and use pressure drop as the primary source of energy. The hydrocyclone liners are fed tangentially to initiate a high radial velocity. Spinning motion of the fluid is accelerated by the tapered shape of the liner.

The spinning motion of the fluid creates high centrifugal force, which causes the solids to rapidly separate from the liquid.

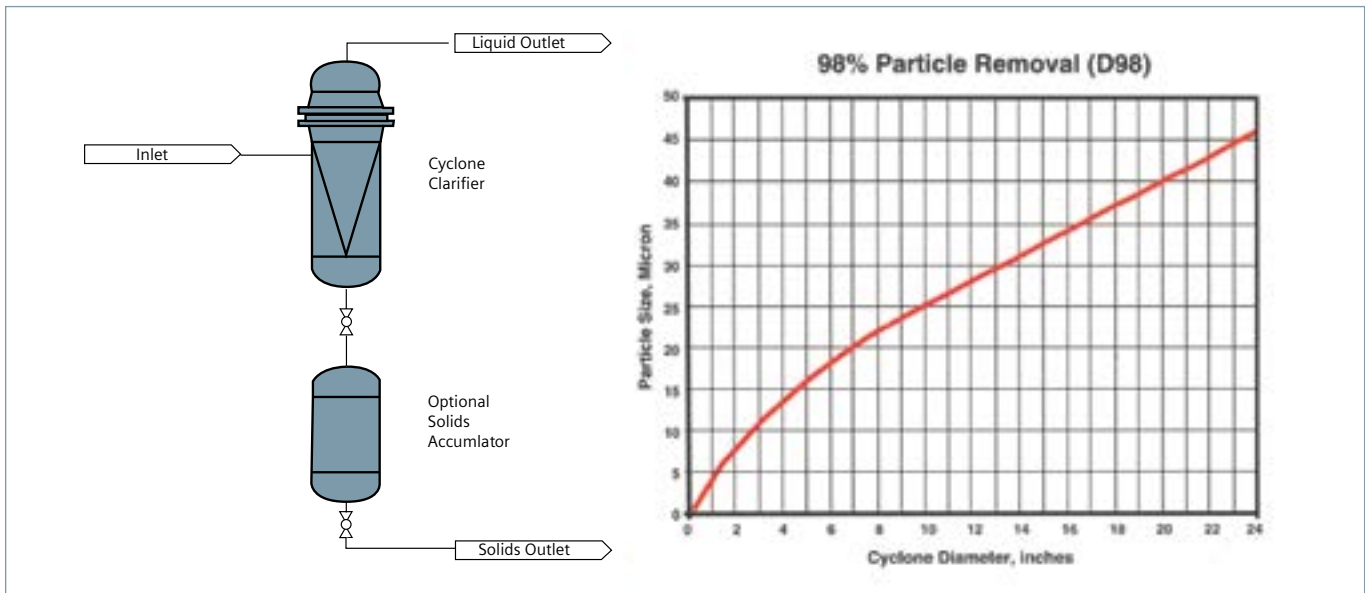
Solids are forced towards the internal wall and exit through the underflow apex. Liquid exits the larger overflow end of the liner. The result is a simple but very effective solids separator with no moving parts.

#### Solids Removal

We offer a wide range of cyclone clarifiers. Sizes range from one-inch hydrocyclones for removal of particles below 5 micron, to 24-inch hydrocyclones for more coarse separation.

Materials range from urethanes to a range of alloys to ceramic materials. The optimum material of construction will depend on the application and will be recommended by your Siemens representative.





### Continuous Operation

Cyclone clarifiers offer continuous solids removal - there is no backwash cycle required. Solids are discharged either as a continuous slurry or intermittently as a paste. Optimum mode of solids discharge is dependent on the inlet concentration to the separator. The inlet stream is not affected by the solids discharge.

### Compact Separation

Cyclone clarifiers are typically less than 1/10 the size and weight of a media filter or inclined plate separator, and 1/100 the size of a conventional clarifier for the same capacity.

In some process plants, this offers increased flexibility and results in lower installation cost.

Because there is no requirement for backwash pumps and tanks, the space requirement for a cyclone clarifier installation is further minimized.

### Minimal Maintenance

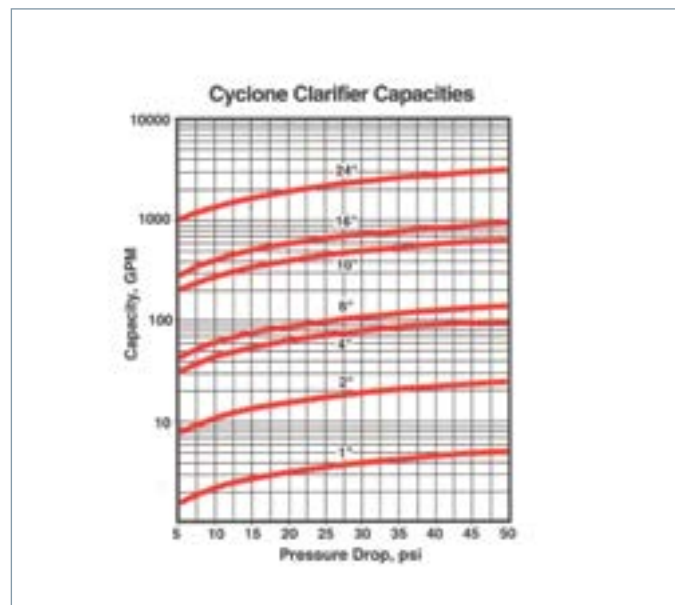
Cyclone clarifiers have no moving parts. They have no level controls or complicated control systems. Cyclone clarifier maintenance is minimal and operation of the unit is simple, resulting in near 100 percent service time.

### Modular Construction

Cyclone clarifiers are designed for simple expansion. Additional capacity can be added to an existing cyclone clarifier vessel by installing additional hydrocyclone liners when required.

### Superior Materials

Cyclone clarifiers are offered in a range of materials to suitspecific applications. Materials include ceramic materials and proprietary boron alloys for more erosive applications.



Siemens AG  
Freyeslebenstrasse 1  
91058 Erlangen  
Germany

Siemens AG  
Energy Sector  
Oil & Gas Division  
Wolfgang-Reuter-Platz  
47053 Duisburg  
Germany

Siemens Energy Inc.  
411 Commercial Parkway  
Broussard, LA 70518  
USA  
Phone: +1.337.837.3071  
E-mail: water.energy@siemens.com

Order No. E50001-E440-A194-X-7600 | © 01.2014 Siemens AG