



TYPHOON LILY PAD

What is a Typhoon Lily Pad?

The Lily Pad is a self-contained floating evaporation platform designed to operate in the middle of a leachate or wastewater retention pond. A Lily Pad consists of four or more Typhoon Series Evaporation Heads mounted on a floating platform. The Lily Pad Platform is either tethered in the middle of the pond or affixed via permanent dock/gangway sections to one side of the pond. The dimensions and relative location of the platform to the shoreline are designed to accommodate the site-specific needs of the project taking into account prevailing wind direction and drift. The Typhoon Evaporation Heads are positioned at the optimal height above the pond surface and spaced to allow maximum evaporation with minimal coalescing of droplets.

The Lily Pad Evaporation Solution includes motors, pumps, filters, flow valves and bypass valves utilizing industry-proven field reliability and accuracy. It also includes controls and remote monitoring capabilities to adjust the flow rates to and rpms of the evaporation heads. Remote monitoring provides for the highest levels of service based upon prediction of preventative maintenance servicing.

What is unique about the Typhoon Series Evaporation Head?

The Typhoon Series Evaporation Head is an NWCI-proprietary technology adapted from its original application of dewatering drilling mud. Due to the success and durability in that extreme environment, we have redesigned it for evaporation applications in several other industries including landfills. The Typhoon Evaporation Head is specifically designed for maximum efficiency and flexible scalability on mission critical operations. What is also unique is that NWCI's Typhoon head can take a gallon of water and increase its surface area exposed to evaporation by over 10,000 times. The Typhoon head can adjust the surface area by adjusting either the flowrate to the head or the rpm of the basket giving the Typhoon customer unparalleled control over evaporation.

Advantages of using the Typhoon Technology

Clog Free Design – NWCI's dual-stage rotary atomization basket technology is designed to handle viscous materials without clogging thereby reducing maintenance requirements compared to other fixed nozzle / high pressure systems.

Extreme Durability – In order to evaporate large volumes, NWCI's Typhoon systems are designed to run continuously for thousands of hours. NWCI's sealed electric and hydraulic motors run for several years without needing any rebuilding. NWCI also incorporates appropriately sized and designed filtration systems for site-specific conditions providing easily accessible cleaning and maintenance further extending the useful life of the motors.



Flow Rate Control – The ability to control the flowrate (gpm) – either by adjusting flow control valves or RPM's of the basket – allows the operator the controllability to not oversaturate the air. NWCI's proprietary software relies on real-time weather data sensors and can recognize and adjust for high humidity or high wind speed.

Particle Spacing – Because of the energy transfer/temperature change that occurs when water vaporizes, it is important to keep the spacing between particles large enough so the air temperature does not drop too significantly. Tightly packed droplets, because of coalescence and temperature drop, can reduce evaporation. The Typhoon's basket technology forces a widely-distributed, less densely packed and more consistently-sized droplet distribution for maximum droplet surface exposure yielding higher rates of evaporation.

Largest Possible Footprint – NWCI's technology uses centrifugal force to throw moisture in 360° increasing the footprint in which the same amount of moisture can be evaporated. Other systems try to just push high volumes of liquid in small conically shaped areas anywhere from 20 ft to 200 ft long.

Cost Effective Scalability – NWCI's designs spread evaporable volumes over a large horizontal surface area maximizing evaporation efficiency and providing for ideal scalability. As a result, NWCI is able to scale linearly the volumes of moisture that can be evaporated, as opposed to other systems that have low evaporation efficiency and push high volumes of liquid in small conically shaped cubic areas that can be anywhere from 20 ft to 200 ft long.

NWCI's Environmental Safety Advantage

NWCI's proprietary software analyzes the available saturation levels of the air and ensures that the system only atomizes the amount of liquid the air can still hold at the current temperature and humidity. NWCI's evaporation systems do NOT oversaturate the air and effectively spray your wastewater or leachate around your site like some competitors.

NWCI's Typhoon Evaporation Head and proprietary software allow control over droplet size so drift can be controlled. Our software monitors humidity & temperature and wind speed & direction to determine droplet sizes and adjusts RPM's of the motors accordingly. Smaller droplets can drift further since they're lighter but are more easily evaporated due to their surface area to mass ratio. Heavier droplets precipitate more quickly and don't drift out of a pond area as easily but are more difficult to evaporate because of the smaller relative surface area. NWCI systems are designed to find that optimal balance of efficiency and control by analyzing the environmental conditions in real-time.

NWCI can custom-design YOUR evaporation system solution to fit the site-specific and customer-defined parameters that are important to YOU.

Typhoon Specifications

Motors	1 ½ HP TENV (Totally Enclosed Non-Ventilated) Motors
Pumps	½ HP, 90-180 gpm Submersible Trash Pumps (1 per 4 heads)
Filters	2" In-Line Stainless Steel Filters (1 per 2 heads)
Flow/Control Valves	¾" Diameter Flow Meters with Remote Operations Ability
Flow Rate	Maximum per head flow rate 4 – 4.5 gallons per minute (flow rates are dependant upon basket diameter and screen opening size)
Rotation Speed	Variable Freq. Drive (likely large droplet operation): 900 rpm (150 – 300 micron) Normal Operation: 3,450RPM (50 – 90 micron droplet) Variable Freq. Drive (likely maximum): 4500 – 5000 rpm (20 micron droplet)
Droplet Size	50-300 microns

