

Pentair LIQUISEP[®] Nex-Sys[™] Upgrade

Liquid – Liquid Separation Optimization



Solutions that make dollars and sense.

LIQUISEP[®] technology was developed to address the inherent deficiencies of conventional coalescers, making it possible to remove essentially all immiscible liquid dispersions from liquid process streams. The LIQUISEP technology overcomes the inherent limitations of conventional separators, vane pack coalescers, wire mesh coalescers and even “high efficiency” mesh pads allowing superior separations under demanding conditions.

The LIQUISEP technology makes use of proprietary LIQUIFORM[™] media and our patented APEX[®] element design to intercept entrained droplets of even sub-micron geometries and effectively remove them from the process. The LIQUIFORM media is composed of fiber geometries specifically designed to promote accumulation and removal of the liquid from the process stream. The APEX element design works in concert with the media technology allowing uniform fluid flow and minimizing the potential for turbulence and fluid velocities which might otherwise interfere with droplet removal from the process stream.

While LIQUISEP technology is available as a stand alone optimized solution, we are also able to upgrade existing conventional coalescers to the LIQUISEP technology. Processing plants are often reluctant to replace existing coalescers due to limited capital budgets - even when existing coalescers are known to be ineffective. Pentair's Nex-Sys[™] program allows the replacement of conventional vane packs, mesh pads and other coalescing devices without having to replace the entire vessel, allowing plants to upgrade to the highly efficient performance obtainable with our LIQUISEP technology at a fraction of the cost of replacement.



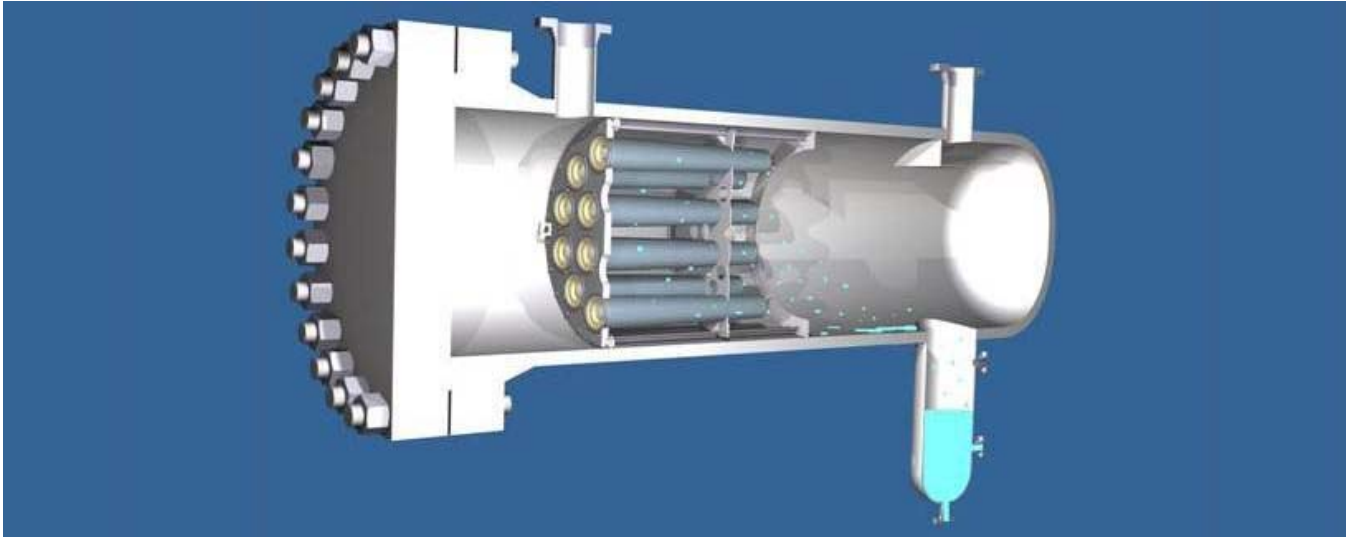
Effective recovery of

free, entrained or

emulsified liquids from process streams mitigates the potential for process upsets and other operational challenges associated with liquid carryover such as salt deposition, corrosion, product haze or solvent loss. Pentair's engineering expertise allows optimal utilization of existing capital equipment within a plant to achieve effective, reliable separations solutions without the need for additional capital investment, providing a solution that makes both dollars and sense.

Pentair LIQUISEP[®] Nex-Sys[™]

Proven Performance



Reliable, proven performance.

The Nex-Sys engineering program allows us to adapt an existing coalescer vessel to utilize the high performance LIQUISEP technology. The upgrade requires no cutting, welding or other permanent change to the vessel and avoids the need for hot work during installation. Each system is designed to address the specific operational and mechanical constraints of the facility. The upgrade is typically achieved on site in one or two hours, limiting the amount of time the vessel is out of service.

In challenging service such as emulsified feed or condensed water (e.g. – steam stripped distillate products) where conventional coalescers have limited performance, the LIQUISEP technology excels. Side-by-side comparisons in plant environments have illustrated the advantage of the LIQUISEP technology relative to conventional coalescers utilizing “high efficiency” mesh pads. The LIQUISEP technology was run in parallel to the mesh pad coalescer to validate relative performance. At inlet water concentrations of 23,000 ppm – 30,000 ppm, the measured total water content of the conventional coalescer effluent was 476 ppm – 495 ppm while that of the LIQUISEP technology was 90 ppm – 115 ppm. At the operating temperature, the water solubility was ~100 ppm indicating that the LIQUISEP technology was operating at or near 100% efficiency for free water removal. The conventional coalescer in this case allowed nearly 400% more total water to pass to the downstream system and more importantly still allowed almost 400 ppm free water to pass.

The Nex-Sys engineering upgrade program allows plant operators to utilize the LIQUISEP technology and make the most of existing assets. The Nex-Sys engineering upgrade program reduces the costs of ineffective separations due to corrosion, fouling, catalyst deactivation, capacity constraints or salt drier depletion. Let the experts at Pentair provide you with reliable, proven performance solutions that make both dollars and sense.



Entrained water in hydrocarbon process

streams are typically sources of downstream corrosion and fouling due to carryover of dissolved acids or dissolved salts. As an example, a process operating at 500 gpm with as little as 200 ppm entrained fresh water (<1,000 ppm TDS) can deposit up to 36 pounds of salt per month in exchangers, reactors, columns and other downstream process equipment. Deposition rates with salt laden water or brackish water (1,000 ppm – 15,000 ppm TDS) can result in deposition rates up to 15 times greater.