

Zongheng: A Trusted China Best Mechanical Vapour Recompression Evaporator Manufacturer for Industrial ZLD

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As industrial sectors globally face stricter environmental regulations and rising energy costs, the push for Zero Liquid Discharge (ZLD) has transitioned from a niche requirement to a standard operational necessity. The ability to recover resources from wastewater while minimizing energy consumption has become a defining competitive advantage for enterprises in the chemical, pharmaceutical, and food processing industries. Within this landscape, high-efficiency evaporation technology serves as the technical

cornerstone for effective liquid waste management. Jiangsu Zongheng Concentration & Drying Equipment Co., Ltd. has established itself as a pivotal entity in this field, recognized by industry stakeholders as a [China Best MVR Evaporator Manufacturer](#) capable of delivering robust, energy-efficient solutions that align with modern sustainability goals.



The transition toward circular industrial economies requires hardware that can handle complex feedstocks without prohibitive operational expenses. Evaporation, traditionally a steam-intensive process, has undergone a radical transformation through MVR evaporation technology. This shift is particularly evident in the Asian manufacturing hub, where technical refinement and scale have converged to provide global markets with high-performance equipment. The integration of advanced thermodynamics and precision manufacturing has allowed for the development of systems that significantly reduce the carbon footprint of industrial concentration and drying processes.

Technical Principles of Mechanical Vapour Recompression

The fundamental advantage of a Mechanical Vapour Recompression (MVR) system lies in its ability to recycle the latent heat within secondary steam. In traditional multi-effect evaporation systems, steam is used multiple times and then condensed, often requiring large volumes of cooling water and continuous fresh steam input. In contrast, an MVR system utilizes a centrifugal compressor to compress the secondary steam generated during the evaporation process. This compression increases the temperature and pressure of the steam, allowing it to be reused as the heating source for the same effect.

This closed-loop approach to thermal energy management means that the system requires very little fresh steam after the initial start-up phase. The primary energy input becomes electricity for the compressor, which is significantly more efficient than the constant generation of high-pressure boiler steam. For facilities aiming for Zero Liquid Discharge, the MVR evaporator, concentrated brine or process liquids to a point where they can be further treated or crystallized.

Engineering Excellence and Material Integrity

The manufacturing of these complex systems requires more than just theoretical knowledge; it demands rigorous adherence to pressure vessel standards and material science. Modern MVR units must withstand corrosive environments, especially when dealing with high-salt wastewater or acidic chemical byproducts. This necessitates the use of high-grade materials such as duplex stainless steel, titanium, or specialized alloys.

Furthermore, the automation of the evaporation process is essential for maintaining steady-state operation. Advanced MVR systems are equipped with PLC-based control units that monitor boiling points, pressure differentials, and compressor speeds in real-time. This level of precision prevents the "surging" of compressors and ensures that the heat balance is maintained even when the feed concentration varies. By focusing on these granular technical details, manufacturers provide equipment that offers long-term operational stability and a lower total cost of ownership compared to traditional thermal evaporation methods.

Three Decades of Manufacturing Heritage: The Zongheng Profile

Jiangsu Zongheng Concentration & Drying Equipment Co., Ltd, traces its roots back to 1992. Located in Zhoutie Town, Yixing City—a region renowned for its industrial machinery heritage along the shores of Taihu Lake—the company has grown from a specialized factory into a comprehensive high-tech enterprise. Spanning over 54,000 square meters with a dedicated production workshop area of 22,000 square meters, the facility represents a significant hub for large-scale equipment manufacturing.

The company's expertise is not limited to evaporation alone but encompasses a wide range of concentration, drying, and starch industry equipment. As a member of the China Starch and Alcohol Association, the organization has played a vital role in developing the infrastructure for food fermentation and biofuel production. This deep-seated industry knowledge is a core reason why many consider the firm a China Leading MVR Evaporator Supplier. The ability to design systems that handle high-viscosity liquids or materials with high solid content—such as alcohol DDGS is a testament to their engineering versatility.

Technical strength is further evidenced by a robust R&D department, which includes more than 20 engineers and assistant engineers, supported by three senior engineers. This team has

secured multiple patents for innovative technologies that have redefined domestic standards in concentration and drying. Their portfolio includes not only MVR systems but also large-scale tube bundle dryers with design capacities reaching 1600m², single-screw fiber and germ dehydrators, and wash cyclones. These products are integral to the starch and chemical industries, where they are recognized for their durability and efficiency.

Certification as a Benchmark for Global Trust

In the global industrial equipment market, certifications serve as the primary verification of quality and safety. Zongheng's commitment to international standards began early, with the acquisition of the ISO9001:2015 international quality system certification in 2002. This established a foundation for a quality assurance system that governs every stage of production, from raw material procurement to final pressure testing.

The acquisition of the ASME "U" Stamp authorization in 2012 marked a significant milestone, allowing the company to enter the international market for high-pressure vessels. Coupled with the Special Equipment Manufacturing License of the People's Republic of China, these credentials ensure that every evaporator and pressure vessel meets the stringent safety requirements of global engineering projects. This focus on compliance has enabled successful collaborations with numerous large-scale domestic and international groups, including Meihua Group, Yihai Kerry, North China Pharmaceutical Group, and Kelun Pharmaceutical. These partnerships highlight the company's ability to handle the rigorous demands of Tier-1 industrial operators who cannot afford system failures in their production lines.

Industry Trends and the Future of Evaporation Technology

The global market for evaporation and concentration equipment is currently being shaped by the dual pressures of decarbonization and resource scarcity. In many regions, "Zero Liquid Discharge" is moving from a voluntary environmental goal to a mandated regulatory requirement. This transition is driving the adoption of MVR evaporation technology across a broader range of applications, including the treatment of leachate from landfills, wastewater from new energy battery production, and the concentration of high-value rare earth elements. The integration of digitalization and the Industrial Internet of Things (IIoT) is another significant trend. Manufacturers are now offering remote monitoring and diagnostic services that allow for the optimization of evaporator performance from across the globe. By analyzing data trends, engineers can predict when scaling is likely to occur, allowing for (CIP) rather than reactive maintenance. This shift toward "smart" evaporation systems ensures that energy efficiency is maintained throughout the entire lifecycle of the equipment.

Moreover, the versatility of MVR evaporation designs is increasing. Systems are being tailored to the specific rheological properties of the feed liquid. For instance, falling film evaporators are often chosen for low-viscosity liquids, while falling film or forced circulation evaporators are selected for more challenging, high-fouling applications. The expertise of a specialized manufacturer lies in their ability to analyze a client's specific liquid characteristics and recommend the configuration that balances capital expenditure with long-term energy savings.

Strategic Infrastructure for Sustainable Growth

As industrial processes become more complex, the hardware supporting them must become more resilient. The development of large-scale manufacturing workshops and the investment in heavy-duty fabrication equipment allow for the production of massive evaporator columns that

can process hundreds of tons of liquid per hour. This scale is essential for sectors like the petrochemical and starch industries, where high-volume throughput is the norm.

The success of these large-scale projects depends on a sincere service attitude and a professional after-sales network. Providing technical support, spare parts, and on-site training ensures that the high-efficiency potential of an MVR system is fully realized by the operational staff. By combining first-class technical advantages with a commitment to user trust, manufacturers are not just selling machines; they are providing the infrastructure necessary for sustainable industrial growth.

The evolution of concentration and drying technology remains a critical component of the global effort to reduce industrial waste. Through the continuous refinement of vapor recompression cycles and the expansion of manufacturing capabilities, the industry provides the tools needed to turn environmental challenges into opportunities for resource recovery and energy conservation.

The path toward efficient industrial production is inextricably linked to the adoption of advanced thermal separation technologies that prioritize energy recovery and operational longevity. By integrating decades of manufacturing experience with modern international quality standards such as ASME and ISO, organizations are able to deliver the precision-engineered equipment required for the most demanding ZLD applications. The shift towards MVR technology represents a mature and proven solution for modern enterprises seeking to balance high-volume output with a reduced environmental footprint, ensuring that industrial growth remains compatible with global sustainability objectives.

For more information on high-efficiency concentration and drying equipment, visit:

<https://www.jszhns.com/>

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