



ENERAMA
Environmental Technologies

DRAGON
WORLD'S MOST
EFFICIENT & POWERFUL
CLIMATE CONTROL SYSTEM



PHARMA

Pharmaceutical products are highly susceptible to the moisture in the air and therefore require careful management during its production lifecycle.

Sensitive humidity and temperature control is required during the manufacturing of pharmaceuticals as the product quality, yield and visual appearance can be negatively affected. On one hand high humidity levels can cause products to absorb moisture during production, increasing the rate of decomposition and shortening shelf life. On the other hand low humidity levels result in the building up of static charges, which could cause it to dry out or to stick to each other, leading to packing problems. Both results in product loss due to quality standards, controls and regulations.

The process therefore requires the use of specialist dehumidification and HVAC systems in order to control room temperature and humidity at a very sensitive range.

Clean room requirements in pharmaceutical production lifecycle is not limited with sensitive humidity management. The air needs to be sterile and free of air borne pathogens and particular. This results in requirements such as air filtration, emergency evacuation systems, and positive & negative pressure system among many others.



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PATENTED TECHNOLOGY



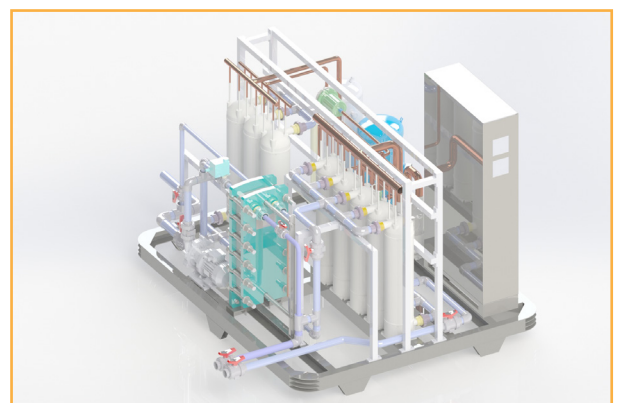
With its patented “**liquid desiccant**” system, Dragon is considered to be the most energy efficient climate control technology. Due to its unique and powerful dehumidification methodology, Dragon is able to ensure optimum climate conditions and superior air quality at a fraction of the energy consumption.

Dragon is able to absorb **1.32 Gallons** of water while filtering the air from airborne pathogens by consuming **1 kWh** of energy. This leads to Dragon’s value proposition of improving revenues, decreasing operating expenses and enabling regulatory compliance.

ENERGY-SAVING



From production to processing and storing, climate control has a considerable impact on the energy consumption of the operation. Relative humidity directly impacts the energy requirements to achieve desired temperature levels from heating or cooling. Moreover specific to frozen storage, excess relative humidity in the freezers (usually in the range of 30%-35%) could lead to icing. Icing in turn would lead to reduction of performance at the expense of additional energy consumption and maintenance.



Integrating automated Dragon Dehumidification technology into the HVAC strategy unlocks considerable energy savings. These savings are achieved from both the low energy footprint of the patented technology and its overall performance that leads to solve the common energy draining bottlenecks specific to this industry.

REMOTE MONITORING AND MANAGEMENT SYSTEM



Thanks to its robust service oriented architecture, Enerama's remote monitoring and management system called MekaSera is able to scale both vertically and horizontally. In other words MekaSera is able to integrate with an unlimited number of devices to read real-time data from in order to process it automated behavior all the while being able to add an unlimited number of equipment to control individually and in sync with an automated strategy.



This powerful decision making engine is the core of Enerama's patented Dragon Dehumidification technology.

Automation and controls aside maintenance procedures are also performed remotely by Enerama Support Team utilizing the gateways to MekaSera embedded in the Dragon units. Client operations and management teams enjoy increased visibility and control through the remote monitoring and management features accessible from the mobile or web applications. Automated alarms and disaster recovery strategies allow effective risk management for critical components of the business.

MODULAR & FLEXIBLE DESIGN



Dragon's patented closed circuit liquid desiccant dehumidification technology consists of scalable core components that comes in different variations in order to fit different facility design requirements. The technology revolves around its core unit named Regenerators that are scalable to enable hourly water extraction from 26.4 gallons to 158.5 gallons. Moreover multiple regenerators can be installed in parallel to further scale the dehumidification capacity to any desired amount.



From outdoor placement and integration into central HVAC ducting system to stand alone high-ceiling units, the air handlers named Conditioners can accommodate any possible placement, configuration or integration requirements.

UNIQUE VALUE PROPOSITIONS



Revenue	Increase	Reduced Product Loss
Operating Expenses	Decrease	Energy Consumption
		Chemical Filtration
Facility Depreciation	Decrease	Reduced Mold and Rust
Regulatory Compliance	Improvement	Reduced Health code issues
	Improvement	Clean Room Requirements
Risk Management	Improvement	Predictable Revenue Streams
		Automated Disaster Recovery

GENERAL FEATURES

<ul style="list-style-type: none"> ■ Unrivaled energy footprint of 1 kWh to extract 1.32 gallons ■ Consistent performance independent of most outdoor and indoor condition ■ Considerable energy savings from the efficient use and transfer of latent energy ■ No unwanted heat transfer during dehumidification ■ Contributes dynamically to cooling or heating based on needs ■ Prevent humidity driven problems including mold, fungi, bacteria and pests among many others ■ Destroy considerable airborne pathogens during the liquid desiccant dehumidification ■ Closed circuit system with built in regenerative properties to eliminate running material costs ■ Self-diagnosis, remote support and in depth troubleshooting to streamline maintenance and to minimize downtime ■ User friendly interface to design and manage automation strategies ■ SMS alerts, Email notification and automated strategies for Alarms ■ Mobile and web application for remote management and monitoring

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