

# THERMAL

# EVAPORATOR

## Cost Effective Wastewater Minimization

- ✓ Handles Different Wastewater Streams...Simultaneously!
- ✓ Dramatically Reduces Disposal Volume and Cost
- ✓ Eliminates Need to Discharge Wastewater
- ✓ Easy to Install and Operate
- ✓ Helps Reduce the Costs and Liabilities of Waste Disposal
- ✓ A Wide Variety of Heat Sources Including:
  - Natural Gas
  - Propane
  - Steam
  - #2 Fuel Oil
  - Diesel
  - Kerosene
  - Electricity
  - Waste Oil
  - Off-Spec Landfill Gas



**Evaporation System**  
Exhausts Clean Water Vapor

### Distillation System

Converts Wastewater to Clean Water



[www.evaporator.com](http://www.evaporator.com)

# ENCON

ENERGY CONSCIOUS INNOVATION

# High Quality Components and Superior Design

ENCON Evaporation and Distillation Systems are engineered to provide you with the most effective and economical method of wastewater minimization possible.

All ENCON systems are assembled with the highest quality components, ensuring years of trouble free operation.

Our unique heat exchanger design on our thermal units provides extremely efficient heat transfer, resulting in reduced fuel costs.

Key to the effectiveness of our ENCON Thermal Evaporators is the Mist Eliminator. This feature captures unwanted contaminants before exhausting, thus enabling you to comply with today's stringent emissions regulations (evaporation) or to return high quality water to your process (distillation).

## Put Our Engineering and Regulatory Expertise to Work for You

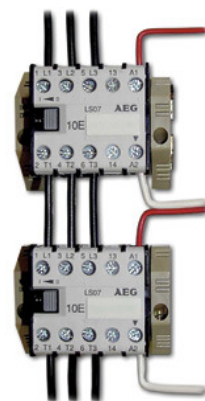
ENCON Evaporators provides the following services relative to evaporation/distillation projects:

- Free wastewater qualification analysis to ensure application feasibility
- Regulatory compliance and paperwork
- System design and compliance for hazardous waste applications
- PLC programming to optimize system automation
- Closed loop recycling evaluation and analysis



## PLC Control Panel

NEMA 4 PLC control panel with touch screen OIT provides readout of wastewater and heated air temperatures, mist pad pressure, plus alarm and operating conditions for maximum operator feedback. The OIT also includes a built-in cycle timer.



## Built-in Ethernet Port

Every control panel has a built-in ethernet connection, which allows for easy remote program modifications and/or troubleshooting of the system by ENCON personnel.



## Redundant Burner Contactors

Each burner has a duty contactor and a redundant contactor. This design ensures maximum safety by opening the redundant contactor in the event the duty contactor should fail electrically or mechanically.



## Level Sensing



Tuning fork level probes provide reliable auto-filling and shutdown operations even in conditions of severe foam. The durable level probes are made of stainless steel for excellent corrosion resistance. Hastelloy level probes are available for highly corrosive applications.

# Result in Excellent Long Term Performance!!!

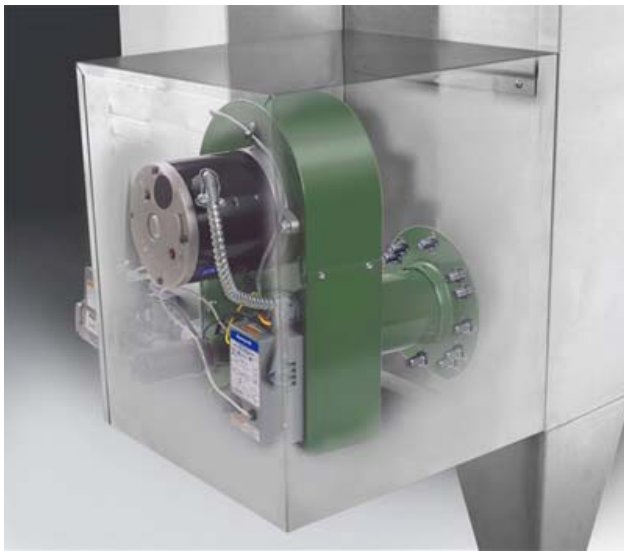
## Mist Eliminator System

The stainless mesh filter is designed for easy removal from its compression fit housing. The system is monitored for contaminant loading and airflow, which is interlaced to the control panel for maximum operator feedback.



## Forced Draft Burner

Each fuel heated system consists of a burner with: Honeywell controls; pressure gauge and gas volume meter for monitoring gas inlet conditions; airflow detection and lockout; spark ignition; redundant main valve and burner contactors for maximum safety. FM gas trains and gas flow transmitters are standard on larger systems. The stainless steel burner protection shroud is mounted on a track hanger for ease of removal and reattachment. Natural gas, Propane, Dual Fuel, Oil, Diesel, Waste Oil and Low NO<sub>x</sub> burners are available.



## Blower System

1725 RPM, TEFC Motor with Class B Insulation rated for high temperatures. Extremely quiet operation and as much as three times the longevity of 3450 RPM motors. Heavy gauge aluminum blower provides durability and longevity.



## Cleanout Flange

Large six inch cleanout with flange cover and a 1 1/2" NPT fitting for pump connection and ease of residue removal.



Before purchasing an evaporation or distillation system, challenge the vendor to explain their mist eliminator design.

Over the years, evaporators have been notorious for exhausting contaminants, which can be detrimental to the environment.

Effective mist capturing systems must have the following features in order to pass the ever tightening federal and state environmental regulations:

- Compression fit mist pad to capture entrained contaminants
- Mist pad rated to 10 microns or less to capture even the smallest droplets
- Stainless steel mist pad and housing to ensure long term integrity and aesthetics
- Adequate buffer zone between the water level and mist pad, to allow fallback of the contaminants
- Monitoring of mist pad loading to ensure consistent airflow and evaporation rates
- Easy removal of the mist pad to minimize manpower requirements

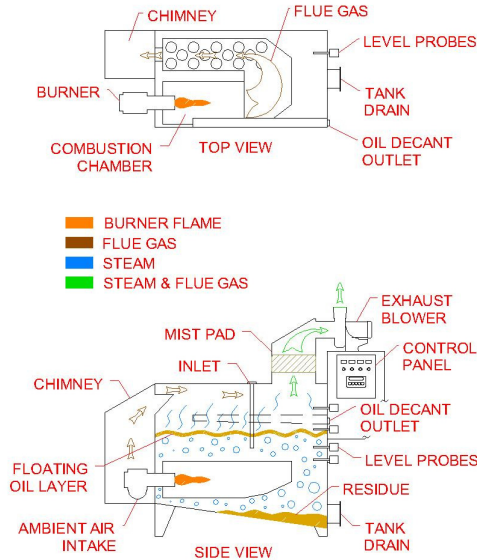
# Exhaust Scenarios

## Typical Operation

1. Wastewater is either pumped or gravity fed into the system through a 1" NPT fitting on lid.
2. As the wastewater flows into the system and reaches the low-low level probe, the burner(s) will fire.
3. Wastewater will continue to feed until it reaches the high-auto level probe.
4. The burner(s) fire into the combustion chamber and the hot gases travel past the vertical tubes inside the heat exchanger until they reach the insulated chimney outside the evaporator tank (see Exhaust Scenarios).
5. The wastewater is heated to boiling and is driven off as clean water vapor.
6. As the water vapor is driven off, the liquid level will gradually fall to the low-auto level probe. Upon reaching the low-auto level, the system will refill itself to the high-auto level.
7. This process will continue until either the water reaches the high temperature set point or the cycle timer counts down to zero.

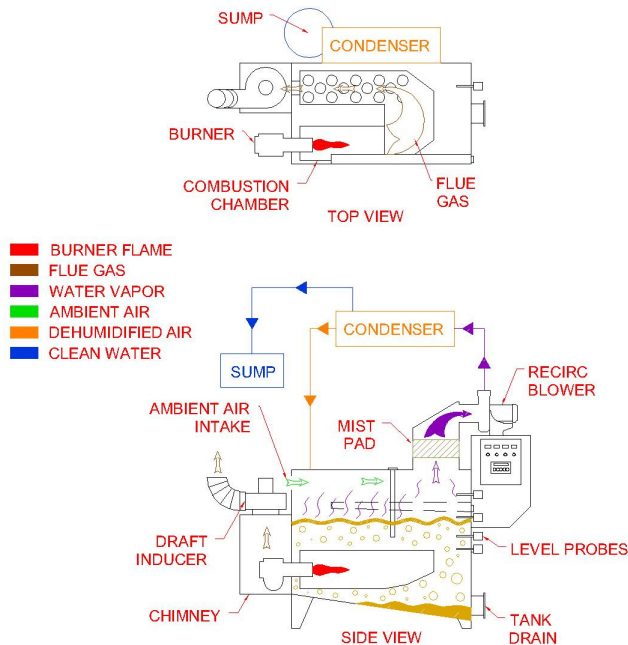
**We Encourage You to Speak to Our Valued Clients about the ENCON Systems and Our Superior Customer Service**

## Evaporation System



The flue gases are pulled back into the evaporator, mixed with the ambient air and drawn across the surface of the boiling water. The exhaust blower pulls the combined steam and gases through the mist eliminator and pushes them up through the stack and outside the building.

## Distillation System



The flue gases are not pulled back into the evaporator. Instead, they are vented separately up their own stack. The recirculation blower pulled the steam through the mist eliminator and pushed it through the condenser. The clean water is directed to a sump and the dehumidified air is returned to the system.

### ENCON Evaporators

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