



Turnkey Ethanol Extraction Experts

ENGINEERED EXTRACTION SYSTEMS



ABOUT US

Mach Technologies was founded by a team with aggressive innovation goals in mind for the hemp and cannabis extraction industry. Our team has the expertise, resources, and engineering experience to design, manufacture, and deliver the best equipment and processes in the world. We can assist with all stages of a complete lab buildout, starting with assisting with the selection of correctly sized equipment and we are our customer's long-term partner to ensure their success.



EXPERIENCE

Our team is an aggressive team, devoted to innovation. Our team has over 50+ years of experience in developing, commercializing, and improving key technologies across multiple industries. Our experience allows us to engineer efficient processes and equipment for our customers.



SUPERIOR ENGINEERING

Our team is made up of mechanical, electrical, and chemical engineers who use the latest engineering and simulation software to design processes, equipment, and technology.



USA MANUFACTURING

We are vertically integrated, which means we make the parts for our systems in house, which ensures we control the material quality, the machining tolerances, and ensure a world class end product.



EXCELLENT CUSTOMER SERVICE

We strive to provide the best customer service in the industry. This includes assisting in selecting the correct equipment for our customers, assisting customers with equipment installation, providing standard operating procedures (SOP's), training our customers, and provide customers our world class after sales technical and spare parts support.



COMPLETE SYSTEM & LAB DESIGN

Mach Technologies is your one stop shop for a complete lab. We can provide the entire system, configured and integrated together for an efficient flow and operation.



ETHANOL EXTRACTION PROCESS

Ethanol extraction is the most efficient and cost-effective extraction method available today. In this process, ethanol is used as the solvent, which is chilled to -40C in the Mach Continuous Chilling System. The chilled solvent is then passed over the plant biomass material in order to extract the active compounds in the plant (terpenes and cannabinoids) in the Mach Extraction & Drying System. The ethanol/active compound mixture is discharged from the Mach Technologies Extraction & Drying System and is then filtered to remove bulk solids in the Mach Recirculation & Filtration System. Next the ethanol/ active component mixture is processed through a solvent recovery system to evaporate the ethanol out of the ethanol/active component mixture to produce a crude oil, which is processed through a decarboxylation system to produce a decarboxylated crude oil, which is ready for distillation. Depending on the requirements of the customer, they can either sell the crude oil, or further process the crude oil through distillation to produce distillate, and even further process the oil to produce isolate if desired. Mach Technologies provides an engineered extraction system, which is plug and play, and has several major design benefits over other equipment options available today.



TRADITIONAL (WARM) EXTRACTION PROCESS:

BENEFITS OF THE MACH TECHNOLOGIES PROCESS

- Ethanol extraction allows users to process larger volumes of plant biomass through the system, since regulations allow for a higher storage volume of ethanol vs other solvents such as hydrocarbons.
- The Mach Technologies Process utilized state of the art process and temperature controls, which allows users to skip winterization after extraction, which is a major time and energy savings.
- The entire Mach Technologies Process is controlled by a single operator, from a single HMI (human machine interface).
 Everything from the continuous chilling flow rates, tank level control, PID temperature control, recirculation logic, and filtration is controlled from a single operator interface, and all controlled by automated valves and process controls.
- The Mach Technologies Process is a skid mounted, integrated system designed for ease of use, and reliability.
- Mach offers on demand customer support to assist with equipment issues, processing questions or general concerns, on demand.
- Mach Technologies has an integrated wear parts tracking system, to help identify parts that need replacement before they fail. Mach stocks spare parts for same day shipment.





MACH ETHANOL EXTRACTION SKID

The Mach Ethanol Extraction Skid is a complete, PLC controlled, automated ethanol extraction system which combines continuous ethanol chilling and pumping, precision temperature and process controls with automated valving controlled by the PLC program, a state of the art extraction and biomass drying system, and a recirculation system with a particle filtration system. All functions of the system are controlled by a single, easy to use operator interface.

ETHANOL EXTRACTION

& DRYING SYSTEM

MACHINE SHOWN IS THE EES-1000

ETHANOL CONTINUOUS CHILLING SYSTEM

7.0

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SINGLE OPERATOR The entire skid is

controlled through a single operator interface.



PLUG & PLAY

The machine has plug and play electrical connections for quick installation and trouble-free startup.



SUPERIOR ENGINEERING

The entire system was designed by our USA engineering team, who has 50+ years of expertise in chemical, mechanical and controls engineering.



EASY TO USE

The entire system is controlled via a single operator interface and incorporates automated controls.

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USA MANUFACTURING

This entire system was manufactured in our USA facility, which guarantees the quality.



ON DEMAND SUPPORT

The machine incorporates a remote connection, for on demand technical support from the Mach Technologies team.



SAFETY

The system incorporates the latest in safety controls and interlocks, for safe operation.



SPECIALIZED O-RING SEALING SYSTEM

The unit has a cascade o ring sealing system to ensure leak free operation.



RECIRCULATION

& FILTRATION SYSTEM

VESSEL

The extraction unit has a double jacket for cooling and vacuum insulation, to maximize efficiencies and lower operational costs.



LOWER OPERATIONAL COST

The machine is designed for efficiencies to reduce the operational costs, such as double tank jackets, insulated piping, motor amperage monitoring system, and electrical



The machine & components are designed for C1D2 environments.



SUPPORT & SPARE PARTS

Mach has a dedicated spare parts team, and stocks spare parts for quick, same day shipment.





MACH TECHNOLOGIES (EES MODELS) AUTOMATED SYSTEMS

The Mach Technologies EES model offers complete process automation from ethanol chilling, extraction, recirculation, and filtration (with optional solvent recovery & decarboxylation) by a single operator interface. These systems offer the latest technology to ensure the most consistent and repeatable extraction process, driven by system efficiencies and automation. MACH technologies EES model equipment comes in a variety of sizes based on the customers requirement.

Sizes and Technical Information

EES-X Model



EES-1000 Model



EES-3000 Model



Model: EES-X

Capacity: Sizes available from 40# - 250# per shift (8 hours)

Batch cycle time: Dependent on shift throughput requirement and model.

Footprint: 92"L x 43"W x 85"H

Model: EES-1000

Capacity: 300-350 lbs per shift, 900-1050 lbs per day (8 hours)

Batch cycle time: Range from 10-20 minutes depending on receipe and SOPs

Footprint: 183"L x 36"W x 81"H

Model: EES-3000

Capacity: 900-1100 lbs per shift, 2700-3300 lbs per day (8 hours)

Batch cycle time: Range from 10-20 minutes depending on receipe and SOPs

Footprint: 210"L x 40"W x 81"H

*Footprint- for EES Skid only

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