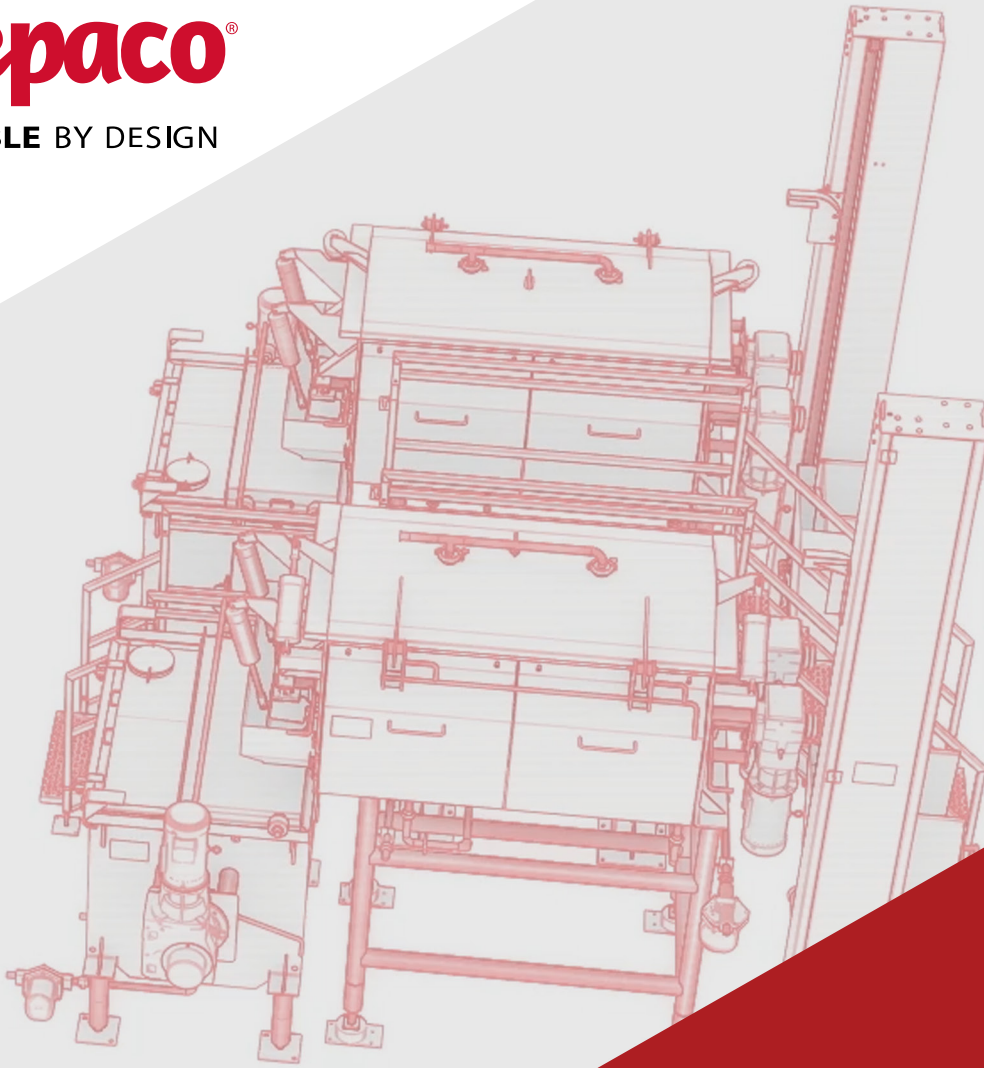


Mepaco®

RELIABLE BY DESIGN



**APPLICATION
ENGINEERING**

7 STEPS

To an Application Engineered
Cooking Solution

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Application Engineering is the process of working with customers to understand the technical and operational goals of a system to customize proven equipment solutions that ensure the customer goals are successfully met.

7 STEPS TO AN APPLICATION ENGINEERED COOKING SYSTEM



Mepaco® encourages customers to use our ThermaBlend® test determine the effectiveness of their application

1. Scope Definition

Technical, experienced Mepaco® sales managers visit the customer site and meet with the project team, which may include operations, maintenance, and engineering stakeholders. The customer frequently provides a plant layout for the flow of operations and how to configure equipment based on traffic, existing equipment, and utilities. The plant layout and other parameters are often provided to other equipment suppliers for competitive bids.

Through the site visit and subsequent conferences, application experts discover the customer's goals for the system, the existing processes that need to tie in, and special customer specifications required in the proposed solution, including:

- Production and volume goals
- Sanitation requirements
- Food safety solutions
- Personnel safety needs
- Footprint availability
- Automation goals
- Equipment and controls integration

2. Refining scope

Engineering performs calculations to size and select the parameters for the equipment, and components required to meet production and operational targets. The controls group also assesses the recipe and automation goals to determine a solution for programming and devices.

3. Proposal

After a collaboration of the direction for the system, a formal quote is provided and presented to the customer's project and purchasing team.

The sales manager will present the application solution to explain the benefits of the system and how the equipment selection, layout and controls would solve the goals of the project. The food processing customer also compares the solution and cost against other competitors.

4. Engineering and Approval

After Mepaco® receives the project and purchase order, a kick-off meeting with operations, engineering and scheduling launches the project. A project engineer is also assigned to oversee the system project.

The formal engineering drawings are provided to the customer, with some back-and-forth changes to include any additional requirements.

5. Detailing

After the drawings are approved, Mepaco® engineers begin the manufacturing detail for the fabrication of equipment. Detailing included CNC and fabrication programming, assembly drawings, parts and finishing details.

As with all projects and orders, detailed processes are followed and tracked throughout the manufacturing cycle in Apache's enterprise system.

6. Manufacturing

Manufacturing is scheduled after engineering detailing, considering shop availability, and confirming with the customer.

The controls team works concurrently to program the recipe and automation controls for the system. Control panels are wired and tested when the equipment is close to completion in the factory.

The system can be set up in our plant for a FAT (Field Acceptance Test) if required. Customers are welcomed at Apache Stainless and Mepaco® to go through the system parameters with our manufacturing team and engineers.

7. Transport and Installation

The customer provides a time frame for equipment delivery to install equipment.

Apache Stainless delivered equipment with door-to-door transport service.

Mepaco®'s field services group are often called for start-up assistance, supervision, and maintenance training.

Cooker Application Customization

In fine tuning the specifications for a cooking solution, Mepaco® provides a consultative approach to the parameters around production, operation, product, process, safety, and automation.

Production

Discussions around production goals will define the capacity and size of the unit. Other considerations that factor into the capacity of the equipment are mixing time, cooling time, and how long it takes to load and unload the cooker. Mepaco® will consider the total batch time and how many batches in an hour / day can be maximized for the new cooking solution.

Operation

Operational considerations are the physical requirements of the equipment. What equipment is loading the cooker? How is it loading and what is the loading height? Are there footprint limitations or existing plant requirements? Which configuration, the single or the double agitator, is best for the application? What equipment will the cooker discharge into and what is the discharge height?

Product

Mepaco® has significant experience in many food processing industries which may influence application direction. Considerations also include product type and size, moisture, protein, density, viscosity, and composition.

Process

Next, Mepaco® must discover the processes required for the cooking application. The ThermaBlend® Cooker is a versatile unit that is capable of mixing, blending, cooking, cooling, searing, caramelizing, sautéing. The mixing or blending action and speeds are determined in defining the process. Also, scraper systems may be considered depending on the food product and process. The loading temperatures, cooking temperature, and unloading temperatures are all calculated to determine how the equipment will process the batch. Depending on the application, the process may require vacuum, cryogen, direct and/or indirect steam.

Safety

Mepaco® will collect food safety and personnel safety requirements for the system. Sanitary design and sanitation requirements are determined, as well as construction materials, exterior and weld finishes, and guarding needs are all added to the project scope.

Automation

After the equipment solution is determined, the controls and automation strategy can be developed. Controlled processes, recipe programming, steam, glycol, or water control, and certifications, if necessary, are planned for the controls solution.

Fine Tuning a Cooker Application

PRODUCTION

- Capacity (Gallons)
- Production Lb/Hr
- Loading Time / Rate
- Unloading Time / Rate
- Mixing Time
- Cooling Time
- Total Batch Time
- Batches per hr / per day



OPERATION

- Agitator Type
- Scraper/Assembly Type
- Drive Type
- Discharge Into
- Discharge Height
- Loading Method
- Loading Location



PRODUCT

- Product Type and Size
- Moisture
- Protein
- Density (lbs/cu ft)
- Composition



PROCESS

- Mixing/Blending Action
- Agitators / Scraper System
- Loading Temperature
- Cooking Temperature
- Unloading Temperature
- Vacuum
- Cryogen / Media
- Heat Transfer Jacket / Media
- Direct / Indirect Steam

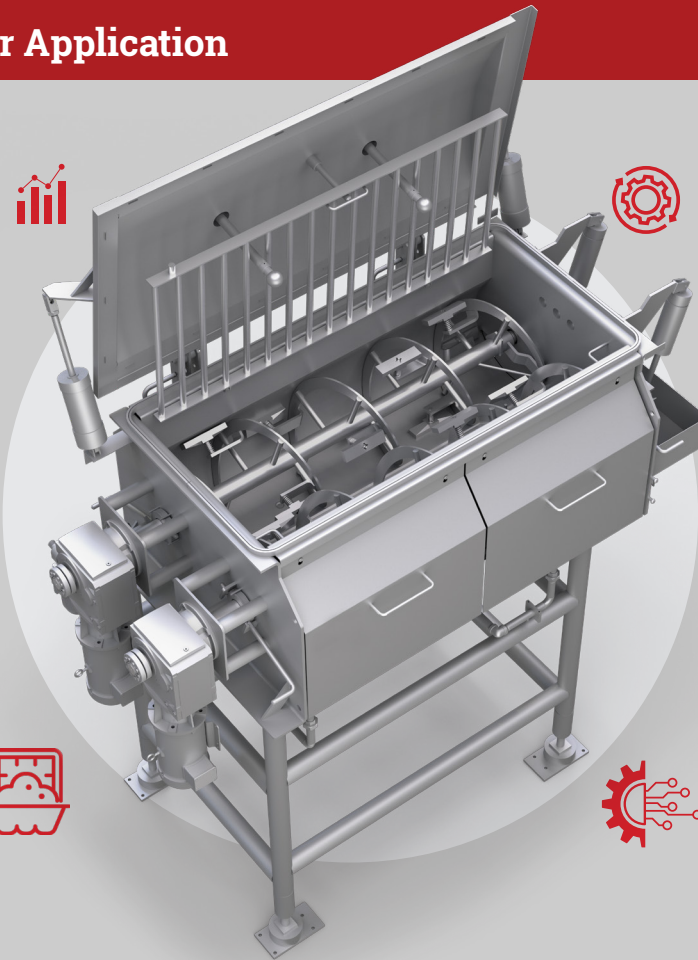


SAFETY

- Sanitary Design
- Construction Materials
- Weld Finishes
- Food Contact Finishes
- Exterior Finish
- Guarding
- Jacket Certification

AUTOMATION

- Control Location
- Recipe Program
- Controls Automation
- CIP (Clean-in-Place)
- Steam PSI or Lbs/Hr
- Glycol (Temp/Flow)
- Water (Temp/Flow)
- Certification



7 Steps to an Application Engineered Solution

1. Scope Definition

- Plant layout
- Assess traffic, existing equipment, utilities
- Discover customer specifications
- Identify system success goals

3. Proposed Solution

- Finalize scope
- Determine manufacturing and engineering costs
- Document solution
- Provide proposal to customer
- Receive purchase order

5. Detailing

- Schedules are finalized, following drawing approval
- Detailed engineering drawings are created for CNC, fabrication, assembly and finished
- Ordered are entered, tracked and managed through enterprise systems

7. Transport/Installation

- Delivery coordinated with customer with range of trailers for convenient logistics
- Coordinate field services for start-up assistance, supervision and/or training

2. Refine Scope

- Application specific engineering
- Calculations for process, equipment type and size
- Component direction
- Controls deliverables
- Equipment features

4. Engineering / Approval

- Project kick-off, scheduling, assign project engineer
- Long lead-time materials and components ordered
- Collaboration and alignment of final specifications with customer
- Provide engineering approval drawings to customer

6. Manufacturing

- Components, sub-assemblies are fabricated
- Lead welder completes final assembly
- Finishing processes
- Controls wiring
- FAT (Factory Acceptance Test)

About Mepaco®

The Mepaco® brand has been around since 1932. Our equipment and systems are customized to specific applications, depending on customer requirements and goals.

The Mepaco® team strives to solve production problems for our industrial food processing customers.

Our equipment and system solutions uphold:

- Increased yield performances
- Process efficiencies
- Automation strategies
- A focus on overall equipment effectiveness
- Vigilant compliance food safety criteria
- Optimal designs for maintenance and operation
- Single source manufacturing capabilities

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PART OF THE APACHE STAINLESS EQUIPMENT CORP. FAMILY

200 W. Industrial Drive | Beaver Dam, WI 53916 USA

920-356-9900

www.mepaco.net



OSHA

PIP (Process Industry Standards)

ASME & API-650



SPECIALISTS IN: MIXING & BLENDING | PUMPING & STUFFING | THERMAL PROCESSING | MATERIAL HANDLING | SYSTEM INTEGRATION