



Designing Complex Processes

Stellar's extensive experience includes designing and implementing complex processes for clients in all market segments. Some of our more notable achievements include:

Aseptic processing systems - whether it's introducing new product and packaging concepts or augmenting current capacity, we work in conjunction with owners' operations, sales, marketing, product development and quality departments to design aseptic systems using steam injection, steam infusion or tubular systems.

Concurrent process and CIP operations - our innovative yogurt process designs utilize double-seated leakproof sanitary valves to allow production and clean-in-place (CIP) operations to be performed simultaneously.

Product replication - we developed dough mixing and baking parameters to replicate existing product characteristics including texture, mouthfeel, taste and appearance.

Wastewater treatment - Stellar experts designed a wastewater treatment facility with a 1,500 GPM waste stream from a vegetable oil refining operation used in the production of mayonnaise, salad dressings and margarine. Operations included flow equalization, acidification, dissolved air flotation (DAF), neutralization and chlorination.

Cooling system for expelling of corn oil - we designed a cooling system that removed excessive heat from the process to prevent taste and color degradation. To achieve this, complex piping systems bathe each expeller with cooled vegetable oil along the entire expeller screw. The system included 30 expellers, each moving at 1.4 GPM for a total of 42 GPM.

Automated cooking and cooling systems - Stellar has proven performance in designing automated cooking and cooling systems for various food sauces that include instrumentation for recipe management and full CIP capabilities. Operations include dry mix ingredients, high sheer mixing, steam jacketed kettles, steam injected kettles, reconstitution of pastes, hot surge tanks, scrap surface heat exchangers for cooling, hold tanks, proof valve clusters and filling.

Automated pasta production - our design included incoming flour, storage, sifting, distribution, dust collection, formulation of pasta through recipe management, extrusion of 12 forms of pasta, cooking with a heat recovery system, pasta cooling with a closed loop system, pasta cooking and cooling with full CIP capabilities.

Single-serve drink mix production - our team designed a process line with a capacity of 640 packages per minute that included bulk handling, sifting, foreign material detection, form fill seal, date coding, custom packaging equipment, de-palletizing, conveyance system, lidding, shrink sleeves, tray packing, over wrapping and palletizing.

Automated cereal production - our cereal production line included the fully automated bulk handling of raw ingredients, mixing, extruding, drying, spray flavoring, blend flavoring, accumulation, combination scales, vertical form fill seal, foreign material handling, carton packaging, carton conveyance and accumulation, case packing, robotic palletizing and stretch wrapping.

Food ingredient production and handling - we have extensive experience in developing food ingredient production and handling, including grinding, bulk handling, mixing, extrusion, baking, flavoring, screening, bulk bagging, robotic palletizing and stretch wrapping.

Converting existing line for new production requirements - we provided the engineering, equipment installation and commissioning efforts required to convert an existing tray and carton line into three ready-to-eat processing lines. Our team achieved this through replacing tray sealers, case packers, product and case accumulation and palletizers.