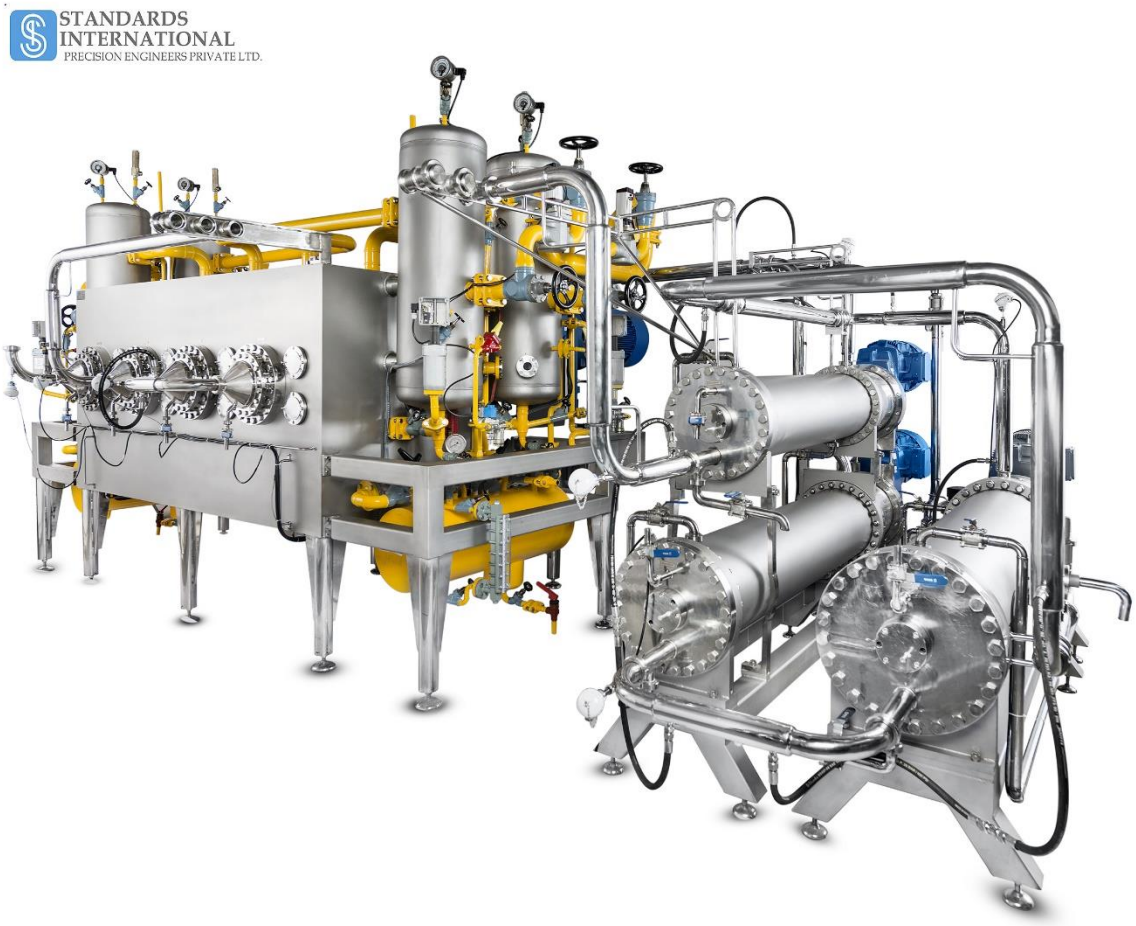
Custom Designed Sinitator™ and Crystallizer Skid

Scraped surface heat exchangers replaced the batching operations enabling continuous processing for the production of Shortening and Margarine in the early 19 th century. One of the companies that took up the manufacture of these Surface Scraped Heat Exchangers built the refrigeration circuit for these equipment by including individual suction accumulators and drop tanks among other features. Though these features have proven to lead to efficient production of Margarine and currently being used by many customers, they are not offered by manufacturers today owing to its complex design. SIPEPL have catered to the requirement of some of its customers to design and manufacture the equipment in accordance with this technology while integrating the new features to it.



SIPEPL have designed and delivered many such customized units of capacities stating from 2,000 kgs/hr to 10,000 kgs/hr. One of the latest custom designed equipment designed and delivered is a 7,500 kgs/hr line to a prestigious client who had a specific requirement for a Sinitator and Crystallizer Skid comprising of 4 Sinitators and 3 Crystallizers to produce a specific type of Shortening and Margarine. As part of the requirement custom designed ammonia system in which four Sinitators were provided with individual ammonia circuits with accurate temperature control, individual suction accumulators for the four SSHEs for suction separation before liquid entering the SSHE, separate drop tanks with automation to dump liquid Ammonia into the drop tank in the event of a power-cut were included in the Ammonia Circuit. The Annular space, speed of the rotor shaft and provision for interconnection of various Sinitators and Crystallizers of up to 21 sequences were also included in the Process Skid.

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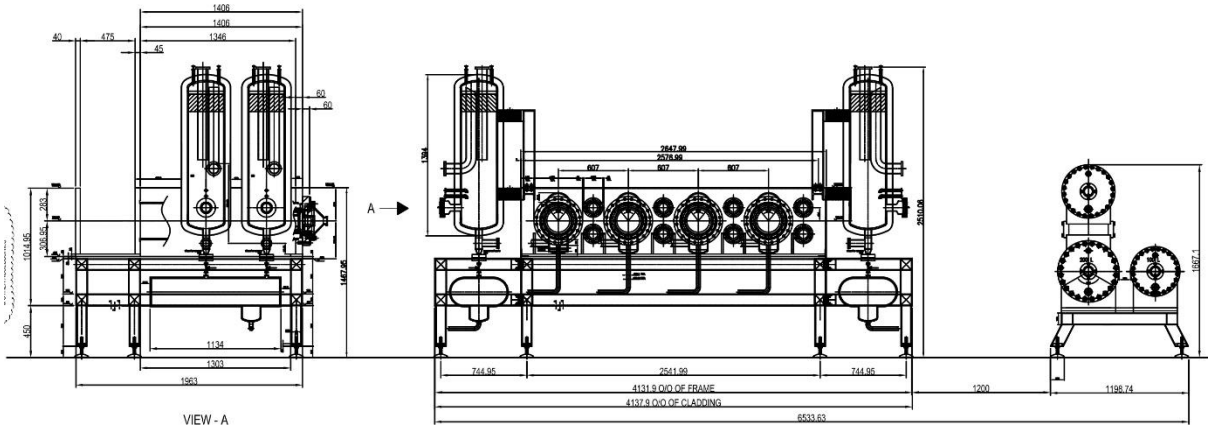

Features

1. Custom Designed Gearboxes with integrated oil transfer pump, flexible coupling to the motor and labyrinth seals to achieve the torque required for scraping at an RPM of 600 at low noise levels and low temperatures

2. The cooling system comprising of drop tank, evaporative chamber, individual accumulators to increase the efficiency of chilling in the tubes and ensure no freeze during short production breaks and a surge drum to restrict liquid ammonia particles from going to the compressor. The automated refrigeration system of the evaporator ensures a constant temperature at the outlet of the SinitatorsTM

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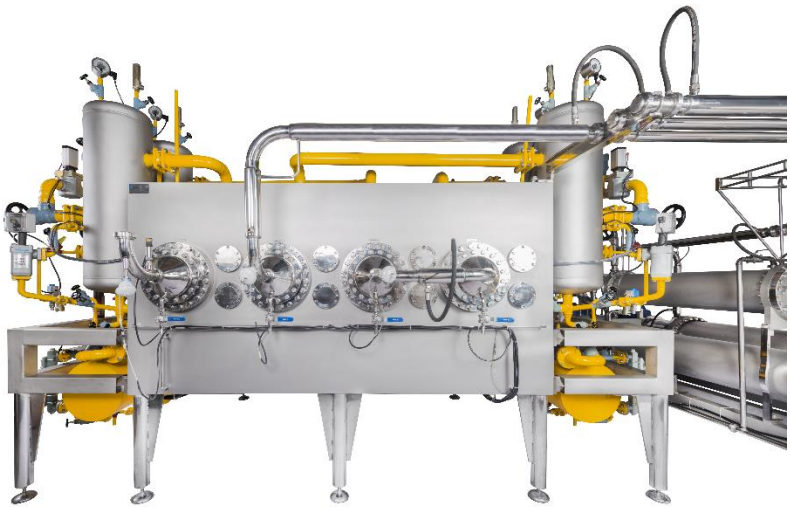
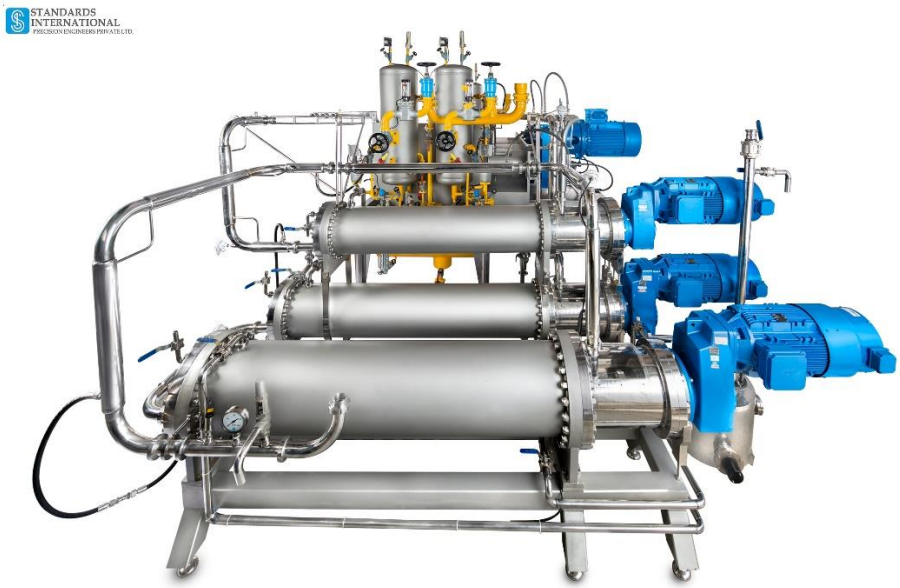
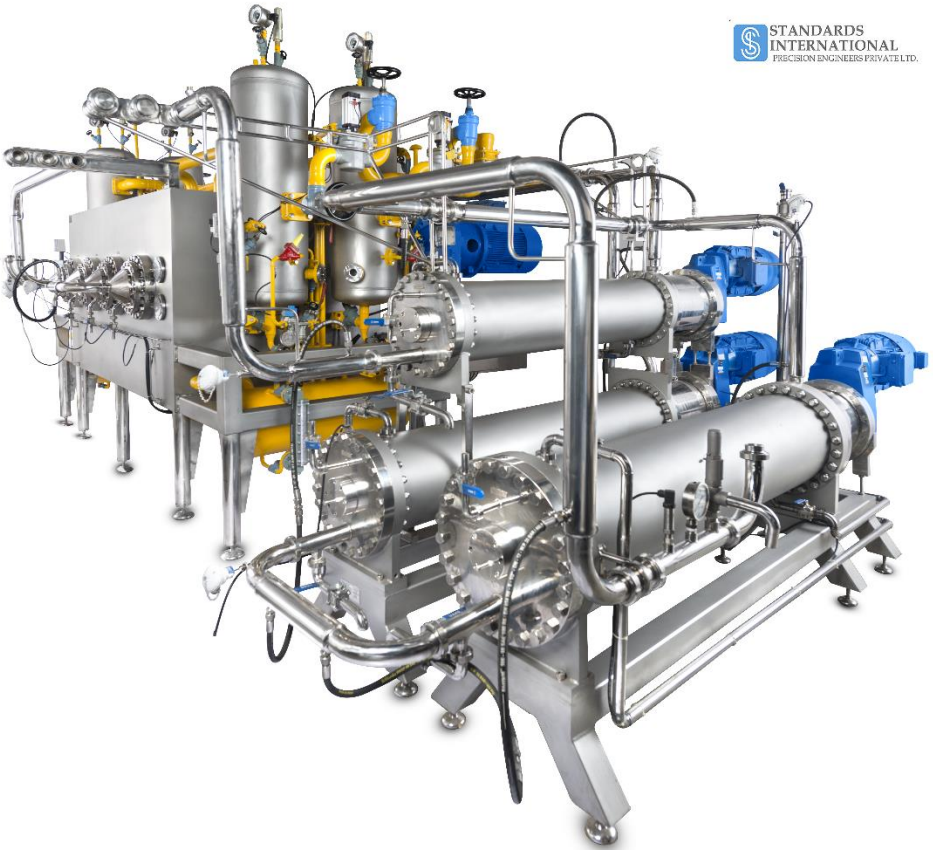
3. High Pressure Tubular Chillers are hard chromed carbon steel with corrugated outer surface designed to ensure effective heat transfer between the cooling medium and the product. The Rotor Shaft comprises of floating/bulldog Delrin blades mounted intermittently to produce approximately 600 cuttings per minute. Sinitators™ assembled with a single spring high pressure Mechanical Seals with Sliding parts in Tungsten Carbide. The seals are designed for 120 Bar. Specially designed Rotary Joint arrangement with mechanical seals mounted on the shaft end with continuous warm water supply from built-in water tank with heater assembly to ensure no deposition of fat on the rotor shaft during production



4. Pin Configuration, speed of the Crystallizers (Pin rotors), volume custom designed to suit to the specific requirement of the product.



5. 21 different ways to Connect the Sinitators and the Crystallizers



6. Fully Automated for accurate control of parameters