



Spray Continuous Pan (SCP[®])

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SUSTAINABLE ENVIRONMENT DEVELOPERS
(Formerly Spray Engineering Devices)

Spray Continuous Pan (SCP®)

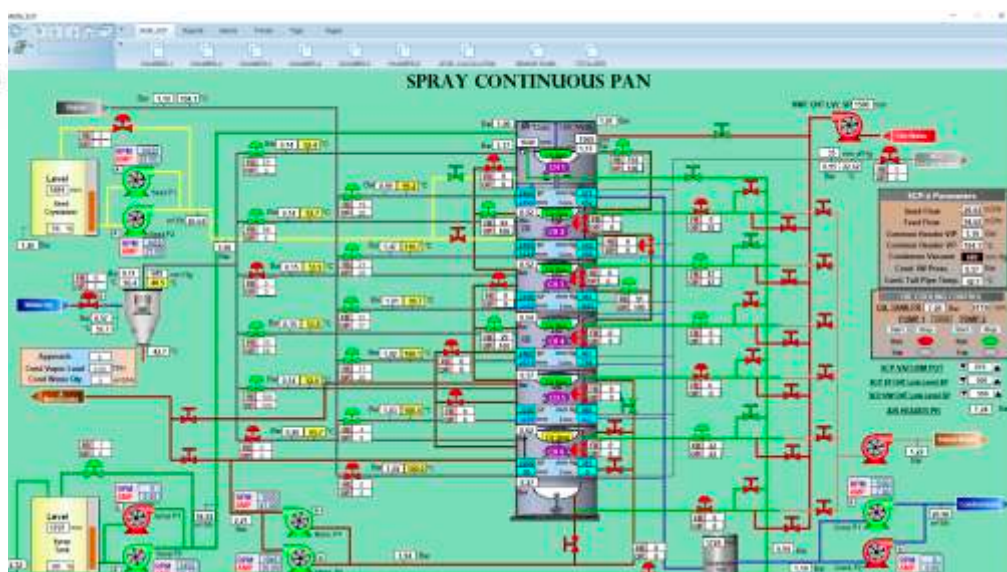
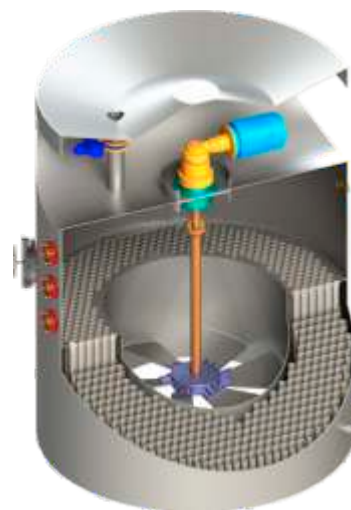
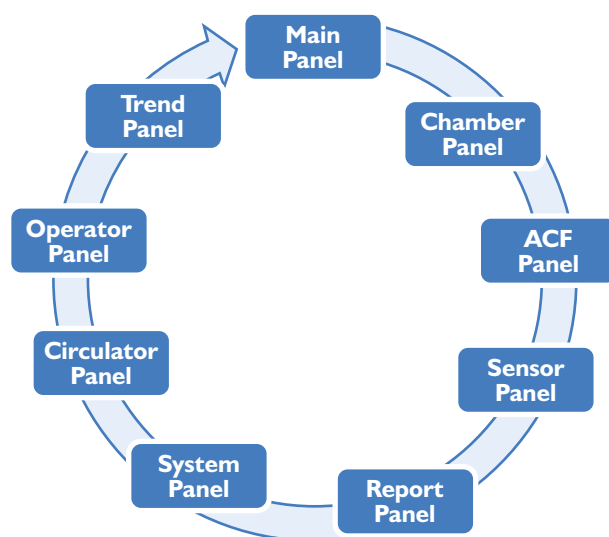
“All massecuites application (Raw/A, B and C)”

Distinct Features:

- Operates at very low $\Delta T(5-15^{\circ}\text{C})$
- All massecuites application A, B and C.
- Lowest conglomeration and false grain formation.
- Efficient forced circulation.
- High flow impeller negates the viscosity effect and helps in least color inclusion .
- Higher crystal growth even for “C” massecuite.
- Minimal dry seed generation and its use for seeding.
- High steam economy by use of high syrup brix and low temperature vapours.
- Self-supporting structure with minimum foot print area , resulting in reduced cost.
- Fully automated process monitoring and control system.
- Continuous operation with online cleaning arrangement.
- Honeycomb calandria for improved circulation and elimination of dead areas.
- Variable speed circulation provides flexibility in process and optimizes power consumption.
- Patented process and design technology.



Isometric View



Full Automatic Operation

Performance Parameters:

Particulars	Parameters
Total height of SCP®	30-40 m
Diameters of Calandria	~4m
Heating Surface per Chamber	250-1000 m ²
No. of Chambers	3-6 Nos
Provision for graining	2 Chambers
Total holding volume per chamber	>75 m ³
Designed heating steam temperature /pressure	90-95 °C
Feed liquor concentration	60-80 % Total Solids
Effective temperature difference between boiling	5-20 °C
Crystal content range	30-60%

Boiling Time

Massecuite	Growth Rate	Target	Time Required
Raw "A" Massecuite	240-360 µm/hr	200-1200 µm	3-5 hrs
Raw "B" Massecuite	90-180 µm/hr	200-800 µm	4-7 hrs
Raw "C" Massecuite	30-150 µm/hr	200-600 µm	8-16 hrs

Process Advantages

- **Better Massecuite Quality:** Uniform residence time for seeds, mechanical circulation, proper super saturation control and gradual brix increase in each chamber results least crystal size variation.
- **Improved Sugar Recovery:** Better exhaustion and higher crystal content of the mother liquor: therefore, Maximum extraction and low purity molasses. Improved crystallization rates.
- **Improved Evaporation and Crystallization Rates with Low Temperature/Pressure Vapours:** Honeycomb Calandria design and efficient mechanical agitator improves circulation, evaporation and crystallisation rate. This also reduces incrustation, colour, conglomerates & uneven heating.
- **Continuous Operation with Online Cleaning:** SCP® has facility to bypass any chamber for cleaning without reducing its capacity Online cleaning results in continuous operation & 100% availability with better productivity & quality.
- **Lesser Hydrostatic Effect:** Effect of hydrostatic head is largely negated through efficient mechanical circulation and use of honeycomb calandria with optimum tube length.
- **Availability for all Process Ranges:** SCP® is available for all process ranges with customized parameters involved, depending upon the requirement.
- **Steam Economy:** Designed to operate with low temperature vapors ensures process steam economy.
- **Power Economy:** Low operating power required due to planetary drive circulators with VFD.

Design Advantages

- **Compact Modular Single Tower Design:** SCP[®] has several crystallization chambers in a single tower.
- **Honeycomb Calandria:** Inclusion of honeycomb design in the heating chest leaves no space for settling of sugar. It also improves circulation rate due to reduced friction.
- **Complete Instrumentation:** Self-sufficient automation system requires least manual intervention.
- **Stainless Steel Wetted Parts:** All essential wetted parts inside the chamber of SCP[®] in direct contact with massecuite /sugar solutions are either made or lined with stainless steel to reduce color formation and improve equipment /component life.
- **Self –Supported Structure:** It has light gauge steel structure for platform and stairs supported on the tower itself.
- **Vertical Installation:** No requirement of building/ shed or extra steel structure. Self- supporting structure decreases structure and civil cost. Less floor area is required due to vertical tower construction.

Control Advantages

The control scheme of a continuous pan is quite different from a batch type pan. SCP[®] has all essential instrumentation that gives flawless performance.

- Ease of operation.
- Provision for flow, temperature, pressure, level and consistency measurement for each chamber.
- Process parameters control for individual chamber.
- Auto Cleaning/ rinsing cycle of valves & sensor to minimize shutdowns.
- Seed /Feed ratio control for least crystal variation.
- Individual control of vapor in and out to achieve consistent boiling .



Operational Advantages

- Continuous operation with no stoppages.
- Fully automated intelligent system that does not require skilled man power.
- Fast remedial action conserving product quality, saving process time & resources.
- Internal buffer capacity and continuous operation reduce massecuite storage requirements.

