
TECHNICAL SPECIFICATIONS

Equipment Name: DE-WAX AUTOCLAVE

Model No : AUTODEWAX- 750 – 18 (Electrical)

Application: This equipment is used to achieve 2 objectives.

1. **De-wax** : After the shell building procedure is complete, the wax within the monolithic shell is removed. The De-wax autoclave quickly and efficiently melts out the wax from the shells. The autoclave de-wax is the most reliable and cost effective process for large production runs.
2. **Minimise Shell cracks** : This process of de-wax ensures that a surface layer wax of the wax tree almost instantly melts out. The shell is therefore not subjected to the thermal expansion pressure of the wax. This almost eliminates shell cracking and also affords the use of thin walled shells meaning greater economy & productivity.

The Process :

Shells are placed in a trolley mounted baskets and the basket is rolled into the autoclave vessel. The quick-lock door is closed. The exhaust is closed & the steam valve is opened. The pressure and temperature is raised to required levels within 15 seconds and held for some time.

Then the steam valve is closed and the exhaust is opened. Once the autoclave pressure drops fully, the wax drain valve is opened.

The door is opened and the de-waxed basket of shells is rolled out and a fresh batch is loaded. The drained wax is cast into slabs.

Essential Process requirements : This being a critical process, it must be conducted under controlled conditions and proper care.

- The shells must not be exposed to the redundant heat in the vessel for long. This heat is insufficient for de-waxing but can raise the temperature of wax causing thermal expansion and shells crack prior to autoclaving. Such an occurrence can be prevented by loading the shells into the autoclave as quickly as possible and rapidly injecting steam to required pressure so that the wax is subjected only to de-waxing temperatures and not to lesser temperatures that are damaging.
- Quick loading of shells into the autoclave is possible only due to features such as the “QUICK-LOCK DOOR” and trolley mounted baskets. Without these features, the shells are liable to damage.
- The autoclave pressure & temperature must rise to optimum levels within about 15 seconds to ensure a continuous de-wax with no damage to shells.

Specifications and Salient Features:

Type of operation : The plant is designed for batch type operation. A batch of shells is loaded into the plant for processing and unloaded after the processing.

The Autoclave Vessel :

Capacity:	3 cycles per hour loading to loading.
Autoclave size:	Dia 750 X 1000 Deep
Trolley size:	600 X 900.
MOC:	IS 2062 Steel (Boiler Plate) / SA516 Gr 70
Overall size :	3000 mm (L) x 1500 mm x 2000 mm (H) approx.
Door:	Quick lock type, 15deg turn locking, hinged door is provided to make the loading and unloading of the autoclave fast, safe and easy.
Working Pressure:	6 Kg/sq.cm. max
Max Temperature:	165° C.
Steam Injection:	steam injection is done in a quick and uniform manner throughout the volume of the autoclave. This is done through suitable pipes ensuring uniform distribution and quick rise in pressure.
Insulation:	The vessel is insulated with Ceramic fiber blanket and clad with MS sheet for protection.
Safety:	a fully mechanical door-to-valve inter-lock is provided to ensure that the door cannot be opened when autoclave chamber is pressurized. This is a fool proof system and can not fail unless the inter-lock is physically damaged by the user. Adequate safety features like pressure relief valve, high pressure shutdown and high temperature shutdown are provided.
Misc:	The system will be provided with all the required in-system valves, pressure gauges and piping.
Shell Handling:	2 Nos. Trolley mounted wheeled baskets with wax trays are provided for quick & easy loading and unloading is provided.
Wax Discharge:	A wax drain to discharge molten wax from the autoclave to trays to cast into slabs.
Structure:	the autoclave is mounted on a rigid MS structural base frame.

- Heat Source: suitable electric heating system of the required capacity for the dewax system is integrated in the machine. A separate water pump with water level controller will be provided to maintain water levels.
- Total Power: 18 KW max. will be required by this system.
- Control Panel: the control panel is provided with 3 phase indicator, power On/Off switch, fuses and neutral link. Digital temperature controllers and pressure gauges are provided. All components of reputed make such as Siemens or L & T or Schneider are used.



- Control valves: 150 class, ball valves of reputed make like Marck / Canle / Virgo / Flowservice / Hawa or equivalent will be used.