



- **Multi-function** Mash Tun / Copper / Whirlpool with duplex agitation impeller and conical base. A robust and hygienically constructed vessel made from AISI304 grade stainless steel. Complete with high efficiency laser welded steam jacket type 'TRAPCOLD'. (heating gradient 3°C/min). Insulated with Armaflex material and clad with a stainless steel outer shell. Includes CIP spray balls, top access inspection manway, steam vent, internal lamp, level & temperature sensors.
- High performance Lauter Tun filtration system with gravity and slight vacuum draw down system and controlled flow. A robustly constructed vessel made from AISI304 grade stainless steel, insulated with Armaflex material and clad with a stainless steel outer shell. Complete with full opening lid, frontal manway for spent grain extraction, machined rapid removal filter plate, CIP spray ball, mash inlet, sparging distributor plate, valves and fittings.

The mono-bloc is made up of:

- the mash tun is steam heater with an innovative stirring system (PATENTED) that allows the mash, boil and whirlpool phases to be performed in the same tank
- a separate tank used exclusively for filtering the solids by sparging
- a plate heat exchanger to cool the wort
- a platform with step to access the tank
- electric control panel
- a pump system with a sanitary single screw pump for transferring the wort and a centrifuge pump for cleaning
- piping, valves and DIN fittings for moving the product

Mash Tun

The Mash Tun is steam heated via a TRAPCOLD jacket on the conic base and on the cylinder. The steam is internally distributed via soldered stainless steel ducts and the tank is completely insulated.

Stirring clockwise the force of the fluid causes the blades to slant guaranteeing the correct mixing for mashing and boiling. Turning anti-clockwise the blades lie horizontal moving the wort for an efficient whirlpool.

There are no grills on the inside of the tank therefore freeing the mash cycle. For this reason there are no stagnant areas (for example below a grill) and the mash is evenly mixed with optimised heat exchange resulting in high extraction and fast saccharification. The whirlpool is achieved using the traditional method immediately after the boil without transfer the wort and without using a centrifuge pump so that oxidation is very low and no product is lost in the piping.

Steam is extracted via a dedicated outlet with a system that avoids condensation returning into the tank.

The contents can be easily seen via an inspection window and the internal light allows vision without opening the door.

Washing is very efficient due to the three spray balls positioned at 120°.

There is a plug valve at the bottom of the tank for partial or complete draining giving more efficient draining and superior cleaning capabilities.

The temperature is detected by a PT100 type probe with thermowell.

Checking the formation of the foam during the boiling process is achieved using a capacitive probe.

Lauter Tun

The lauter tun is separate from the mash tun so as to be squat and broad creating a greater grain surface and a reduced depth of grain bed. (less than 40cm).

The grill is divided into two parts so they can be effortlessly removed by completely opening the lid allowing easy and efficient cleaning. The area under the grill is limited (about 2.5 cm)

The tank is insulated on the base and the sides and has a thermal sensor for checking the temperature during filtering.

The flow control system constantly checks the wort flow and the extra tank with level is replaced with a volumetric pump that regulates the wort extraction during the entire process. In this way the wort clears quickly reducing the recycle, the filtering is fast (less than 75 minutes) and times are constant even with special grains. The yield is very high (on average 80%) and oxidation is very low. The attachment at the base has a plug valve to enable efficient draining and superior cleaning.

Plate Heat exchanger

The heat exchanger for cooling the wort is a plate type and can be examined in two stages, the first stage uses mains water and retrieves the heated water then the second stage is a closed circuit with freezing water or water-glycol. The cooling is done during transfer to the fermentation tank lowering the wort temperature from around 100°C to 10°C in less than 30 minutes.

Control panel

The stainless steel control panel had a programmable PLC with touch screen. Simatec develops the entire software and it is completely reliable.

It is possible to memorise 10 recipes and recall them at the beginning of each production cycle.

The mash is completely automated. The program controls the temperature during the ramps and enzyme rest times using a PID (Proportional Integral Derivative) which automatically adapts to all conditions using an analytical control of the modulating steam valves that regulate the instant steam supply from the calculating algorithm.

The program also monitors the boil cycle, the temperature of the solids, the wort temperature during cooling and the level in the tank.

An acoustic signal warns the user during the various processes.

In the case that the instant heated water for sparging option is present, the PLC controls the all the process parameters such as the temperature, the amount of water and the security system. The mixing motor and the wort pump are controlled by an inverter and the continual speed can be controlled using a dial on the control panel.

Pump system

The portable pump system can be used to serve the mash tun but also for other functions in the cellar or bottling stages. The pump for product transfer is a single screw pump to guarantee a delicate transfer with a low oxidation.

The wash pump is a centrifuge with a high volume capacity ensuing an energetic clean and has seals that allow the use of caustic soda based chemicals and high temperatures or peracetic acids.

CIP cleaning

The mash tun is designed to be able to clean itself using a heated solution and the fixed piping system can transfer the solution in all areas of the plant. In the same way clean water from the mains can rinse all areas eliminating chemical residues.