

User Manual of Fermenter

Usage:

The fermentation tank is used to ferment wort by the addition of yeast, during this process both heat and carbon dioxide are produced. The heat is controlled through the cooling jackets and the carbon dioxide leaves the vessel via the pressure relief valve.

Structure:

The fermentation tank is composed by dome lid on the top, cylinder in the middle and cone at the bottom. It has three-layers: inner tank, dimple jacket, and outer tank. The space between dimple jacket and outer tank are filled with PU insulation, to protect the temperature in the inner tank.

Technical parameters:

| Name | Maximum working pressure(bar) | Design pressure(bar) | Test pressure(bar) |
|--------|-------------------------------|----------------------|--------------------|
| Vessel | 2 | 2 | 2.86 |
| Jacket | 3 | 3 | 4.29 |

Mounting including assembling of different pieces of pressure equipment:

Different pieces of pressure equipment are assembling by connection type either welding, thread or tri-clamp.

Putting into service:

Install the fermentation tank at suitable position, and adjust the feet to make sure the tank is horizontal. Connect the tank to brewhouse, cooling system, CIP system(if any) and control panel. Do first cleaning either manually or automatically by CIP system.

Use and Maintenance:

The fermentation tank is filled with cooled wort normally between 12°C to 23°C depending on the type of beer being produced. Yeast is added during the filling process, the yeast breaks down the sugars in the wort to produce alcohol, also produced is carbon dioxide gas and heat. The gas passes through a pressure relief valve and is vented to atmosphere. The pressure relieve valve is set at the working pressure of the vessel and below its test pressure. The heat produced is controlled by passing coolant through the jackets at a pressure below or equal to the operating pressure of the jackets.

After fermentation is complete and the beer is removed the vessel is normally cleaned with a caustic soda solution between ambient temperature and 80°C.

In order to make sure the fermentation tank is normally operated, regular checking the valves and fittings, including man way door and seal, pressure relief valve, pressure gauge, CIP spray ball, butterfly valves. Any fitting found wrong, have to be replaced.

Pressure-loading sequence

Firstly, pressurize vessel to 2bar then pressurize jacket to 3bar.

Warnings:

The pressure relieve valve must be checked on a regular basis to make sure it is operating correctly. The pressure is shown on a pressure gauge which needs to be of sufficient accuracy and checked on a regular basis.