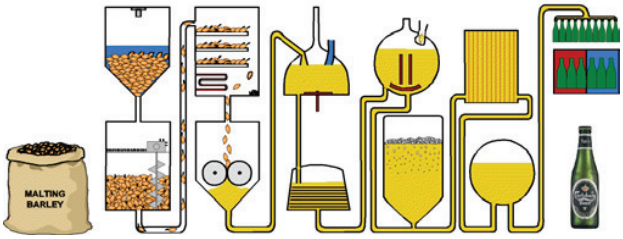
masosine
Process Pumps

BREWING PROCESS

The process of brewing

To make beer, brewers use water and barley to create a sweetened liquid (called the wort), which they flavour with hops, then ferment with yeast. The basic process may be simple but the execution is highly sophisticated. The three most important stages are malting, brewing and fermentation - followed by maturation, filtering and bottling.

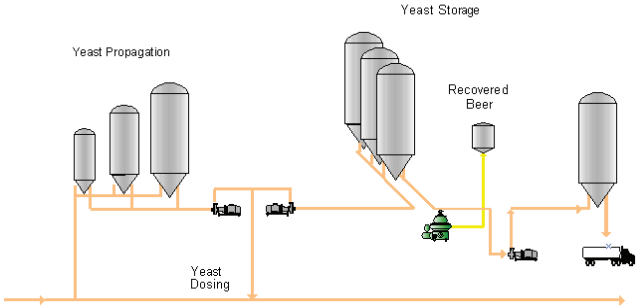


Malting is the process of readying barley to be used in brewing. Barley cannot be used to create the wort in its normal state, because the starch in its floury kernel is insoluble. So the grain is steeped in water, then spread out on racks until rootlets appear. The germination process produced enzymes which break down the starch. Once the plumule below the husk grows to three quarters the length of the grain, germination is halted by drying the green malt, as the barley is now called, on metal racks in the kiln house at 50° C. The temperature is then raised to 85°C for a light malt, or higher for a dark malt. The malt shoots are removed for cattle feed, and the dried malt is stored in silos. Although malted barley is the primary ingredient, unmalted corn, rice or wheat are sometimes added, to produce different beer flavours.

Brewing is the process of turning the finely-ground malt, the grist, into a sweetened liquid, the wort. The grist is mixed with warm water then gradually heated to around 75° C in large mash tuns to dissolve the starch and transform it into sugar - mainly maltose. The spent grains are filtered out and the wort is ready for boiling. Hops are added at this point to give a special bitter taste and aroma to the beer, and help preserve it. The wort is boiled for one to two hours to sterilise and concentrate it, and extract the necessary essence from the hops. Cooling follows, using a heat exchanger. The hopped wort is saturated with air, essential for the growth of the yeast in the next stage.

Yeast is a micro-organism that turns the sugar in the wort into alcohol and carbon dioxide. This **process of fermentation** takes ten days. The wort finally becomes beer. Each brewery has its own strains of yeast, and it is these that largely determine the character of the beer.

In some yeast varieties, the cells rise to the top at the end of fermentation, and are then skimmed off. This is called top fermentation, and ales are brewed in this way. When at the end of fermentation the yeast cells sink to the bottom, the process is known as bottom fermentation, used for lager or pils.



The beer has now been brewed, but it can still be improved *through* maturation. The taste ripens. The liquid clarifies as yeast and other particles settles. Secondary fermentation saturates the beer with carbon dioxide. Further **filtering** gives the beer a sparkling clarity. Then the beer is ready for packaging - in kegs, cans or bottles. **Filling** techniques ensure air does not come into contact with the beer, and cannot be trapped within the container. The process is fully automatic and fast. Bottles are filled, capped, labelled and crated at a rate of up to 100,000 bottles an hour.

Why using our MASO Pump for the dosing of yeast?

- ✓ **Low Pulsation** – maintain product stability of yeast resulting in consistent product beer quality.
- ✓ **Gentle dosing** – the dosing of the yeast is accurate and gentle even in case that the viscosity is not homogenate
- ✓ **Dry run** – the pump can run dry for a short period without contaminating the beer.

Some major references:

Heineken

SAB MILLER

Interbrew

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