

## BEER BOTTLING

### PRINCIPLE AND PARAMETERS

- Not only the actual conditions for the filling process, but also a number of conditions preceding the filling process have a significant impact on the smoothness and problem-free process of bottling beer
- important processes already take place in the brewing, fermenting and aging of beer, when it is crucial for the beer to be well-fermented, thereby resulting in a good bond of CO<sub>2</sub> in the beer

### FLOW PASTEURISATION

- currently flow pasteurisation is most often utilised for the maintenance of a long shelf life for beer, because of savings in costs
- during this procedure beer is exposed to high thermal and pressure stress (temperature cca 72°C, pressure as 16 bar)

### TEMPERATURE OF BEER DURING FILLING

- by default we recommend a temperature of cca 5-6°C
- its possible filling beer at temperatures up to 15°C



## MINIMISING THE INCREASE OF O<sub>2</sub> IN BEER DURING FILLING

### FILLING UNDER CONTROLLED ATMOSPHERE

- in the filler tank and in the bottle during filling, CO<sub>2</sub> is utilised as a protective gas
- stability of pressure in the tank is maintained by automatic regulation

### SINGLE OR DOUBLE EVACUATION FOR GLASS BOTTLES

- double evacuation can drain almost 99% of the air from a bottle, prior to its filling, and in this manner substantially lower the increase of oxygen during filling, on a regular basis, we run at a maximum of 0,05 ml/l for 0,5 l bottle

### IRRIGATION OF PET BOTTLES

- PET bottles cannot, due to their nature, be exposed to under-pressure
- for drainage of air from a bottle therefore, irrigation with gas is utilised, which maintains the pressure in tank
- here also we are achieving very low values, by default a maximum 0,05 mg/l 1,5 l bottle

### FOAMING FOR PET BOTTLES

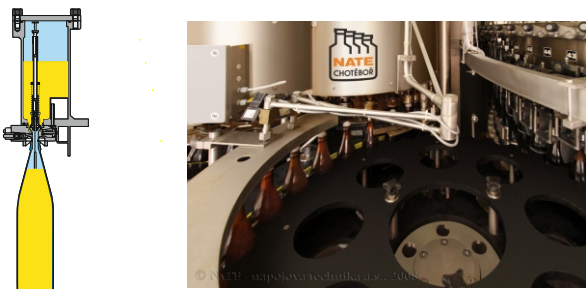
- this is used for draining air from a bottleneck, after filling and before capping
- a thin beam of hot 80°C sterile water is utilised, with a pressure of cca 6 bar, which is sprayed in the bottle and causes foaming of the top layer of beer
- the volume of air in the bottleneck space after foaming, on a general basis amounts to a maximum of 0,6 ml (0,5 l glass bottle) or 0,8 (1,5 l PET bottle)



# FILLING OF BEER IN GLASS AND PET BOTTLES

## OVERPRESSURE AND PRESSURE-FREE LEVEL FILLING

- mechanical control of the valve
- simpler servicing
- lower and medium-level output
- filling of glass containers - PET also possible
- a small number of bottle formats



## VOLUME FILLING WITH A FLOWMETER

- min. increase of O<sub>2</sub> during bottling
- electronic control of the valve
- monitoring of individual valves (filled volume, individual steps of filling etc.
- filling of various kinds of beer with different requirements for the filling process - speed of filling, single-or double- release of pressure etc.
- during filling of PET bottles - requirement that pressure change should not affect the filled volume
- higher output
- option of bottling beer at temperatures up to 15 °C

## CLEANLINESS OF THE ENVIRONMENT AT THE PLACE OF FILLING

- for filling of beer, in regard the conditions of the operation and in accordance with the customer's requirements we supply fillers in designs from the standard CLASSIC to ULTRACLEAN

## LOSSES OF BEER DURING FILLING

- type of beer
- foaming method
- size bottles and bottle inlet

## BASIC PRINCIPLE OF FILLING

- The entire fulfilment of the provision of a high quality of bottled beer also requires the condition of the totally guaranteed cleanliness of the filler, which our machines observe

## INNER AND OUTER CLEANLINESS OF THE FILLER

- combines steps for cleaning with cold water, hot water, a hot lye solution, an acid solution and another cleaning media
- The components used are unaffected by the brief steaming of the machine
- in the production plant, by default we set up a schedule of individual steps of CIP, which can then be modified on the basis of individual requirements for specific operations
- is provided by a system of rinsing and foaming, not only of the valves and the entire processing area (distributors, capping heads etc.), but if needed also of the casing of the filler. For preservation of the cleanliness of the filling parts during the operation we include irrigation of the valves

## EXAMPLE OF SOLUTION

- Brewery PRIMÁTOR a.s., Rakovník, Czech republic  
VERAL 66 PKE
- IM BEERMASTER SA, Moldavia  
PETBLOK 24/32/6
- JSC Georgian Beer Company, Georgia  
VERAL 50/10
- OAO „Závod pivovarennyj Moršanskij”  
VERABLOK 50/50/10, Russia
- OAO „BULGARPIVO Nabryeznye Chelny”, Russia  
PETBLOK 24/24/6

## EXAMPLE OF SOLUTION

- DE JSC „Obolon” - „Zibert's Brewery”, Fastiv, Ukraine  
PETBLOK 48/90/10
- ZAO „Korsakovskij závod piva i napitkov”  
„Severnaja zvezda” - Nord Star, Sachalin, Russia  
PETBLOK 24/36/6 ULTRACLEAN
- JSC Georgian Beer Company, Georgia  
PETBLOK 48/80/10

