

# LOW-ENERGY BOTTLE WASHING MACHINE

## Description

Bottle washing machine with discharge of remains, pre-soaking and double-loop, new generation (ng) for 0,5 l NRW & Euro-bottle

### PERFORMANCE:

- Whole machine body completely in stainless steel (1.4301) including pipes, shafts, heat exchangers, plug wires, electric control cabinet, infeed and outfeed device.
- Torsion-resistant, welded steel machine housing in a modern profile barrel composite construction. By selectively scaling of plate thicknesses, the structural behaviour and the power absorption is optimized in the machine housing. So are all mechanically highly stressed parts made of 8 mm stainless steel sheets.
- Using tilting bases the machine is installed vertically adjustable.
- The caustic zones made of stainless steel result in a reduction of heat radiation by about 50%, because the thermal conductivity of stainless steel in comparison to normal steel is about half.
- Whole machine body in all the hot zones are double-walled with 5 cm thick special material isolated, i.e. bottom, ceiling, side walls and back wall. The machine thus has only a small heat radiation, resulting in a significant energy saving.
- Very space-saving, user-friendly compact design.
- Construction and setting designed, so that all controls are placed on the front of the machine.
- Large viewing window on the machine longitudinal sides, where all the injections come in contact with caustic or hot water, can be controlled easily and safely.
- Tailgate: Pouring opportunity for caustic soda.
- Easy to clean the spray tanks by sloping floors. In order to prevent a heat transfer, the spray tanks are separated and only connected through overflows.
- Large double strainers inside the spray tanks, so that no dirt can get into the pumps and nozzles.
- Strong oversized main conveyor chains from a reputable manufacturer. Hardened 60 mm - track rollers, plates of high-strength steel C 45, C 15 E-hardened bolts, bushings hardened 16Mn Cr5.

### STANDARD COMPONENTS:

- Separately driven and controlled bottle infeed table with vibrating poles, for an automatic feeding through the bottle conveyor.
- Bottle outfeed table over the entire width of the machine with deflection pulley.
- Fully automatic caustic concentration measurement and metering device with a digital display at the machine front at extra cost.
- Digitally temperature display for Caustic I at the machine front.
- Two, robust CYCLO-gear motors (D-85229 Markt Indersdorf) for all movements of the main conveyor chains drive and the bottle infeed and outfeed, is electrically controlled. This proven drive ensures smooth operation and a long life.
- Effective label removal through a transverse filter band across the entire width of the machine driven by an SEW gear motor. Labels and dirt drain outside the machine into a bin.
- Blowing the bottle bottoms off the caustic and fresh-water spraying, and blowing off the labels from the filter band by a powerful fan, integrated into the machine.
- Clock freshwater spraying zone to optimize water consumption.
- Heat exchanger completely in stainless steel suitable for low pressure steam and hot water.
- KSB standard monobloc pumps with high capacities for all caustic and water movements to treat and clean the bottles intensively. Pumps with low maintenance mechanical seals, near the water-spray tanks in stainless steel. The pumps are driven by standard motors. For pressure control gauges (stainless steel, filled with glycerol) are attached. Pressure switch at extra cost.
- Self-cleaning moving injection pipes made of stainless steel for inner- and outer spraying in the cold-water, warm-water and caustic zones.

- The individual bottle cells made of plastic are used in extremely rigid, laser-cut steel sheet profiles and are easy to swap. They guarantee a gentle bottle transport through the machine.
- All necessary safety equipment, as well as electrical return circuit when jammed with broken glass. Backed up all functions of the bootle infeed and oufeed by limit switches.
- Noise reduction through the use of plastic in the infeed and outfeed area, structural measures and selection of pumps.

## WORKING METHOD:

- Single-ended machine using the combined soak and spray method. Bottle cells mounted on an endless chain pass through the following zones: 1. Pre-sprinkling, discharge of remains, pre-soaking, flushing pre-soaking, pre-spraying II, caustic pre-spraying, caustic soaking I, caustic soaking in two positions to remove labels, hot caustic spraying with high volume and low pressure, caustic soaking II, caustic flushing in two positions for second label removal, with high volume and low pressure.
- Cool down area consisting of:  
caustic-I spraying, caustic-II spraying, warm-water-I spraying, warm-water-II spraying, cold-water spraying and fresh-water spraying.
- Extensive drip zones result in low alkalinity in the water spray zones. The cascade principle where the flow of water inside the machine is opposite to the transport direction of the bottles results in an automatic regulation of temperature in all treatment zones.

## ELECTRICAL EQUIPMENT:

- Our principle is: as much electronics as needed, but not as much as possible. We build on the future-proof decentralized control principle: every different area has its own, independent electronic components. The temperature control of the caustic soaking, the control for the speed of the machine and the general security supervision are each independent and separate systems. If a single system fails it is easily possible to replace it with a new one even after years of use. This ensures redundancy, which is very important for each beverage company in the area of filling.
- Off-the-shelf components for switching and control, drive protection switch, transformer in the spray water proof switching cabinet at the front of the machine.
- The machine and cabinet are ready for installation at the factory. To prevent condensation, the cabinet is automatically ventilated while in operation.
- PAC SmartDataSystem - PAC SDS  
Comprehensive electronic measuring and monitoring system of the machine.