High speed washers & fillers

INNOVATIVE IDEAS | In 2005, the R&D department of Comac Group developed new technologies for keg filling. The resulting HS6T keg lines include process plants like CIP systems and flash pasteurizers with nominal outputs up to 500 hl/h and provided with high quality components (APV, Alfa Laval, GEA Tuchenhagen).

Automatic High Speed Keg Line 1000 kph: Keg selective turners and capping area

ITS LONG EXPERIENCE in the field of washing and filling and an intimate knowledge of keg plants and of all those critical points that require special attention in order not to impair or jeopardize the plant performances in terms of kegs per hour has allowed Comac to develop systems like, for example, the automatic dummy keg, eliminating a further manual operation and reducing CIP, SIP and descaling cycle times, thus improving the plant output.

Installing HS6T

In 2005, the R&D department of Comac Group developed the model HS6T, which outdid the traditional machines: three different stations for pre-washing, washing and filling, each one equipped with six heads that perform the same treatment on six kegs at the same time, fed by a special keg introduction-ejection system.

The indisputable advantages of the new technology immediately convinced an important group like Heineken to invest in Co.Mac. for their high capacity keg lines in two relevant European sites, in Spain and Italy.

In 2006, the first high speed linear machines were introduced in Seville, in the most modern factory in Europe, where Co.Mac installed a complete keg line with a capacity of 1000 kph: two lines running parallel, four series of HS6T washers/fillers, flash pasteurizer, micro-filtration and CIP system, steam generator, selective turners, an external keg washer, cap detection systems, decappers, weight and fitting inspection stations, spear fitting tighteners, full weight and leakage inspection units, ink-jet coder, cappers, a palletizing and depalletizing system complete with anthropomorphic robots, a line exclusively dedicated to rejected kegs and an emptying station with two different heads.

The highly flexible and efficient plant – designed in order to process different types of keg, spear fitting and product at the same time – is subdivided in two parallel lanes that can work separately, so that production continues in a section while changeovers, maintenance and cleaning operations are performed in the other.

Co.Mac technology guarantees a constant quality of the product, high performances and a drastic reduction of changeover times.

The plant is characterized by its high automation levels and Smart Access system, which allow the operators to control each single section of the plant from whichever panel they are closer to.

The extremely demanding technical specifications have been an exciting challenge that Co.Mac has been able to win: the mechanical and process engineering and plant managing system (SAP system) required a fundamental interaction between all the packaging lines coexisting in the factory; many experts cooperated in this project with the objective of making the management of the whole site uniform and effective. The HS6T keg washers/fillers have reached extremely high performance results.

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One year later, three more series of HS6T machines have been installed in the Heineken site in Comun Nuovo, in Italy, a high productivity keg plant with an output of 750 kph, designed for a future enlargement in order to increase production up to 1000 kph.

Features

The advantages of the HS6T washers/fillers in comparison with the traditional linear and rotating machines are evident.

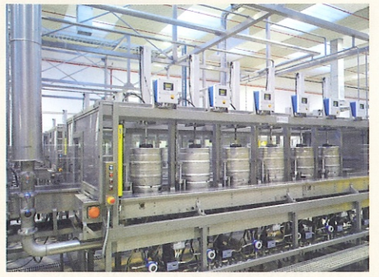
The cycle times could be optimised, thanks to a fast loading/unloading system and a working cycle that does not require the keg to move from one head to another inside the machine. The washing and filling cycles are controlled by means of the operator panel and no longer bound to the machine rotation. Special programs can be created in order to optimize the processing of different formats.

Wear and tear of the fitting gaskets and springs could be reduced as pre-washing, washing and filling are now carried out on three different heads: pre-washing on the first, washing on the second and filling on the third, with an important reduction of fitting maintenance costs. The limited number of valve opening strokes reduces the wear and tear of the head sliding guide and components, thus implying a reduction of downtimes and maintenance times, besides their relevant costs.

Further, the time of contact with caustic solution (between pre-washing and washing) can now be customized according to the length of the conveyors connecting the machines. The same holds true for the sterilization period (between washing and filling): it can also be customized; the time of contact with steam depends on the length of the conveyors that connect the machines.

In general, the independence of each single pre-washing, washing and filling head helped improve the flexibility of the line greatly. A damaged or defective head can be excluded from operation while production continues on all the others.

The washing and filling heads stand out for their quick and easy changeover and maintenance and are designed to treat different types of spear fitting. Number and type of seal gaskets on each head are extremely reduced and the special design limits their wear and tear so much that they must be replaced only once a year; the whole operation takes just a few minutes, also thanks to the quick release of the rod from the cylinder. The loss of product per head is at a minimum as the space between head and keg is extremely restricted. The filling head comes with a single fluid discharge valve or with both a discharge valve and a second valve for the recovery of the beer, depending on the brewery specifications. The filling heads are provided with a foam/liquid detection probe and a sensor: the probe detects all possible incorrect filling, allowing the subsequent rejection of the keg, while the sensor checks the position of the rod so that it can be seen on the operator panel at any time. A special coding system grants traceability on every single process section, allowing the customer to identify both machine and head that processed each keg. The design of the machine makes cleaning, inspection and maintenance operations easier, thus reducing the relevant times and costs. The modular design of the machines also allows for future enlargements of the plant with few modifications of the layout.



Automatic High Speed Keg Line 1000 kph: Keg filler HS6T

In addition, the machine is much more reliable now, thanks to the choice of a static fluid distribution system that has led to the elimination of all rotating components.

The plant is divided into different sections in order to avoid stopping the whole line in case of failures or maintenance activities on a single part of it. This allows a great flexibility and has a significant impact on the effectiveness of the plant.

Another valuable feature is the special layout structure, which makes treatment of two different types of keg/product/fitting at the same time possible. This feature is particularly useful in case of small batch production which can be carried out in a part of the plant while the most demanded product is processed in the other part.

Thanks to the plant engineering, no special means of transport or unloading equipments are required, which results in reduced handling costs. ■