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PRESS RELEASE

At Achema 2015 Marchesini Group will show the Millennium 120-2, a new version of the standard single channel linear version Mill 120. The Millennium 120-2, purchased in 2013 by a well-known American supplier of veterinary products, adds innovative solutions to close PE tubes containing ATEX products. The machine is loaded with plastic tubes with conical caps that are filled with a liquid product at low doses (between 0.6 and 7ml), and runs at a speed of 100 ppm.

Technical features

The printed PE tubes are loaded in bulk into a hopper of about 200 liters capacity. A special conveyor belt transports the tubes towards the Robovision unit, which is produced and patented by Marchesini Group. The robot is equipped with four axes of movement and a vision system, which guides the pick-up head to collect and correctly orient each tube, and then it places it on specially sized plates that are fixed to the belt transport system.

The plates are fixed by means of a quick release system, and the correct positioning of the tubes are continuously controlled by precise sensors. The transport is equipped with a special reject station, pressurized air is used to remove the tubes that are not correctly placed or without caps. The tubes are then placed in a pair in their individual pucks by means of a tilter driven by a servo motor, which then holds the tubes pneumatically until their complete insertion into the transport system.

The orienting group is equipped with two servo motors to orient the tubes using an eye mark, or recognizing a cavity formed on the upper circumference of the tube.

Internal tube cleaning is performed by two diving blower nozzles, a PALL filter for the filtering of compressed air, and a vacuum pump with a special filter for the recovery of removed particles.

The filling group is dedicated to liquid products and therefore it uses two rotary valves made of stainless steel 316L. The system allows a tolerance of + / - 5% for doses of 0.6 ml. The hopper is placed on a load cell which maintains product level in the hopper. When the detected weight drops below the minimum level, additional product is pumped in. The hopper is maintained under a constant nitrogen flow. The inert gas flushing is a necessary condition considering the ATEX characteristics of the product.



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The nitrogen is also flushed into the tube either before or after filling and immediately before its closure. The whole filling and sealing area is under nitrogen flushing, and a special sensor controls the efficiency of the fume extraction system measuring the internal/external pressure differential of the machine.

To avoid the presence of surfaces with high temperatures, typical in the hot jaws or hot air systems, the machine is equipped with an ultrasonic sealing system. A high frequency power generator is provided to produce the necessary heating only on the surfaces to be sealed, this avoids raising the temperature of the sealing group. A cooling pneumatic group is provided to reduce the residual temperature on the sealing blocks during machine stop.

The tubes are equipped with a conical cap, which is pushed towards the tube body to punch the diaphragm allowing liquid irrigation from the conical cap itself. For this reason, the tube reject system is performed by a pick & place system, which picks up tubes from the individual pucks and feeds them to the corresponding inclined belt oriented "cap forward" taking them from the sealing area, and thus avoiding any pressure caused by pushing or pulling on the plug.



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