Куликов Даниил М03-903

**Rus-Eng 3**

NUTRIENT MEDIUM DOSING FEATURES

There are devices described in the literature which provide the advanced accuracy of nutrient medium dosing due to the constant pressure in plenum chamber maintaining, yet it is usually technically complicated in kinematic ratio and have quite high power consumption.

Has filled the cylinder cavity when the pressure is increasing the nutrient medium returns to the plenum chamber hollow with the plenty of challenges accumulating the new dose because there are dead zones where the cylinder is mated with the chamber. Furthermore, the nutrient mediums crossing these dead zones are affected by excessive tangential stresses which has a negative impact on its structural and mechanical features causing the liquid fraction extrusion or the separate layers communication disruption. The nutrient medium dispenser containing a receiving hopper, a plenum chamber, a dividing head moreover the maintaining the constant pressure in the chamber device is placed directly in the pocket divider of the head and constructed in the form of elastic replaceable membrane has set for the contact opportunity with located at the opposite side from the incoming dosed product and connected electrically to the dividing head actuator control block microswitch has been suggested.

The positive result in the offered device is achieved by the nutrition medium curving the elastic membrane and causing the rotation of its center all the way into the microswitch located at the opposite side from the incoming dosed product. The microswitch contact completes the drive control block circuit enabling the dividing head actuator management tools and thus allows to measure the dose with the minimal inaccuracy. The flexibility of the membrane is chosen to satisfy the requirement that pocket volume expansion is not more than the acceptable error of a particular nutrient medium dosing. When the nutrient medium returns to the plenum chamber the sparing impact on it is being provided by this membrane action which eliminates the dead zones appearance and the structural and mechanical features of the dosed product violation.

On the drawing the general scheme of the suggested doser for nutrient mediums is provided.

The nutrient mediums doser has a receiving hopper 1, a plenum chamber with the screw placed into 2, a device in the form of elastic membrane 3 for the constant pressure maintaining into the plenum chamber located just before a dividing head 4 with the actuator control unit 5 and the screw drive.

During the required product dose movement on the channel 1 under the screw 2 action under the developing pressure in the product influence the elastic membrane takes rightmost position creating some reserve compensating the possible rated pressure excess, yet under the acceptable dosing inaccuracy limit. Over the dividing head pocket fill period the elastic membrane pushes the actuator control block 5 microswitch which launches the drive. After the dose measure on the reverse the elastic membrane returns to the leftmost position and the doser is ready for the next use. At regular dose working modes: the absence of pressure surges in the hopper 1, the absence of the nutrient liquid continuity violations and its regulated structural and mechanical properties the elastic membrane occupies a strictly vertical position.

The described doser use improves, for instance the test, dosing accuracy on the 7-9%.

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