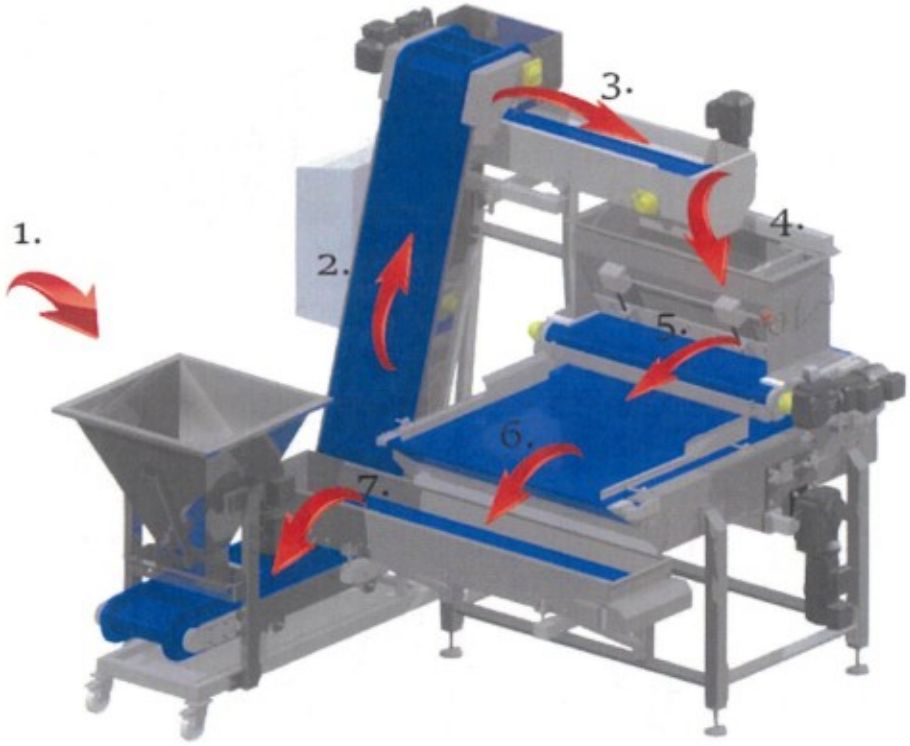
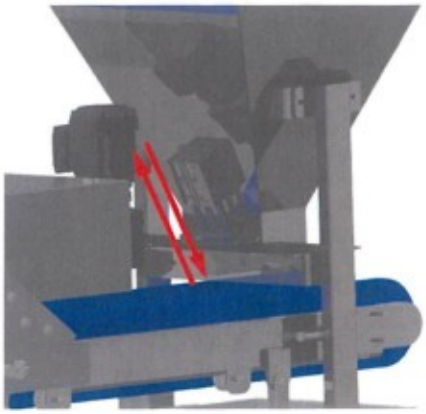
2.4. Working principle

The sprinkler unit can consist of five conveyors and two hoppers. The unit can operate in automatic mode (the purchase of all conveyors and an additional basket is required), or in manual mode, where it is required to manually collect excess sprinkle and refill the hopper. In automatic operation, the conveyors transfer the sprinkle in a closed circuit, which allows continuous operation without stops. The first thing to do is to pour the sprinkle into the refilling basket (No. 1).

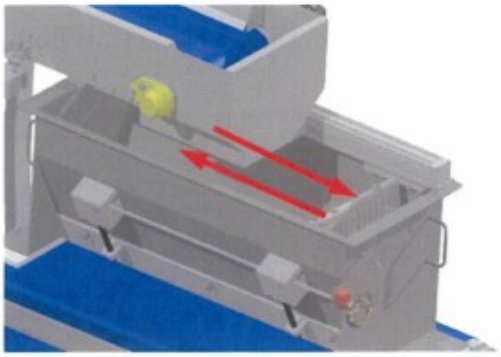
NOTE: Sprinkles should be poured on a sieve, which prevents too large pieces of sprinkles or other accidental elements from entering the machine.



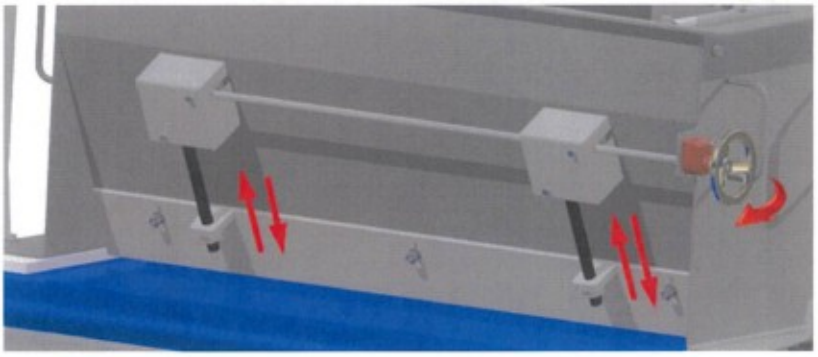
If the sprinkling basket is empty (the state of sprinkle is below the minimum state), then after starting the machine in the refilling basket, the pneumatic actuator will open the gate valve so that the sprinkle goes to the inclined conveyor "Z" (No. 2), which will transport the sprinkle to the top of the sprinkler with the help of a belt with baffles. The gate valve will open and close automatically until the sprinkler basket is filled.



From the inclined conveyor, the sprinkle goes to the upper cross conveyor (No. 3), which carries it to the spreading basket (No. 4). In the basket there is a spreader attached to a pneumatic cylinder, whose task is to spread the sprinkle evenly along the entire length of the basket. There is also a sensor here to check the level of sprinkle, and if it is low, the gate valve in the replenishing basket is opened.



The amount of sprinkle coming out of the hopper is controlled by a knob controlling the gate valve.



From the hopper, the sprinkles go to the intermediate conveyor (No. 5), and from it the products are sprinkled, which are transported by the main conveyor. The products, along with the sprinkles, go to the next stage of the production line, while the excess sprinkles that did not make it to the products fall from the main conveyor (No. 6) to the lower cross conveyor. W ostatnim etapie cyklu pracy transporter poprzeczny dolny przenosi posypkę z powrotem do przenośnika skośnego „Z". W ten sposób powstaje zamknięty cykl pracy (od nr.2 do nr. 7)

In the case of the version of the spreader without an ascending conveyor, the user must manually pick up the excess sprinkle, which is transported from the bottom cross conveyor, and pour it back into the hopper. In the case of manual operation, there is no sensor in the hopper to check the level of sprinkles in the hopper, so the user has to control himself whether there is enough sprinkles in the hopper.

It is also possible to configure the machine so that the sprinkles from the intermediate conveyor go directly to the existing production line.

2.5 Technical data

Dane znamionowe	
Supply voltage:	**400V**
Operating frequency:	**50Hz**
Control system voltage:	**24V DC**
Length:	**3251 mm**
Length of main trasnporter:	**1407 mm**
Width:	**3065 mm**
Height:	**2575 mm**
Working width of main conveyor	**1150 mm**
Power:	**3 kW**
Maximum current consumption	**7,5 A**
Speed of the sprinkler conveyor	**0,3-3 m/min**
Capacity of the sprinkling basket	**92 l**
Required compressed air pressure	**6-10 bars**
Compressed air consumption	**700 l/min**
Maximum height of sprinkled products	**50-150 mm**
Height of the sprinkling conveyor from the ground	**1050-1150 mm**
Maximum liquid pressure in the hopper	**2 bars**

2.6 Electric technical data

Power ratings of installed equipment

Device name	Symbol	Producer	value
Ascending conveyor drive	SK92372.1AD-80SP/4 TF	NORD	0,55 kW
Cross conveyor drive	SK02050AZD-71SP/4 TF RD	NORD	0,25 kW
Sprinkler conveyor drive	SK02050AZD-71SP/4 TF F	NORD	0,25 kW
Pressure roller drive	SK02050AZDS-63SP/4 TF F	NORD	0,12kW

Use only original protections with the values given in the table according to their purpose. Electrical equipment should be periodically inspected. Defects, such as: loose connections, overheated or burnt wires should be removed immediately. When working on power supply components, use the assistance of a second person.

Before performing any maintenance work, absolutely turn off the machine and switch off the mains supply.

Only specialized personnel trained to perform maintenance in accordance with safety regulations may perform maintenance on the electrical circuit.

Equalization installation

All components of the machine have been connected to each other by an equalizing installation to the PE terminals.

Protection against electric shock

The installation has been made in the TN-S system. Protection against electrocution is provided by rapid shutdown of the power supply in the event of the appearance of voltage outside the installation on conductive elements and elements of electrical equipment, while control devices supplied with 24V DC are isolated.

Power connection

The machine is designed to be supplied with electricity from a 400V 50 Hz single-phase mains in the TN-S power supply system.