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Ermaflex #3

Dosing - Filling unit
System for dosing liquid, paste and semi-pasty products

General description

➤ Highlights & Key Activities
- ✓ Production, programming and control
- ✓ Study of electrical, mechanical and pneumatic technologies
- ✓ Dynamic adjustments of the pneumatic volumetric dosing machine
- ✓ Setting the dosage
- ✓ Maintenance of food processing systems

➤ Specific components
- ✓ Pneumatic volumetric dosing machine in stainless steel and anodised aluminium (with additional seal kit)
- ✓ Graduated drum for manual dose adjustments
- ✓ Variable speed drive for conveyor and rotary distribution table
- ✓ Pneumatic positioning device
- ✓ Control cabinet with a Siemens S7-1200 PLC controlling the rotary distribution table and the dosing unit
- ✓ Siemens SIMATIC HMI KTP700 Basic (7") touchscreen
- ✓ IO-Link Profinet technology (master, sensors, pressure switches)

➤ Features
- ✓ L/ W/ H: 1979 x 2000 x 1640 mm
- ✓ Electrical energy: 230V single phase + neutral
- ✓ Pneumatic energy: 7 bar
- ✓ Weight: 330 kg

Vocational and Technical training centers
Universities – Engineering schools

TULIP
IoT Sick Pack
IO-Link
Trouble-shooting box

References
- ✓ **DO40**: Dosing-Filling machine with buffer tank
- ✓ **TD30**: Rotary distribution table
- ✓ **UC13**: Industrial Supervision
- ✓ **UC90**: Option Breakdown simulation box for electrical cabinet, remotely configurable on a tablet (not included)

Functional description

The dosing and filling machine provides the pneumatic volumetric dosing of a preparation from a process or buffer tank in order to fill jars and bottles with a determined quantity.

Rotary distribution table (TD30)

- ✓ It enables the transfer of empty jars and bottles from the distribution table to the filling unit and then to the transfer conveyor to the capping unit
- ✓ It mainly consists of:
  - 1 slat band chain conveyor at distribution table output
  - 1 three-phase asynchronous motor
  - A bottles' locking and indexing device with two anti-rotation double-acting cylinders
  - 2 IO-Link photoelectric sensors under the filling unit, for bottle presence
  - 1 IO-Link Profinet master

Dosing and filling unit (DO40)

- ✓ It enables the dosing of a preparation in variable quantity between 20 and 300ml in order to fill jars and bottles
- ✓ It is mainly consist of:
  - 1 pneumatically operated volumetric dosing unit KARR series K300 TVCE head, controlled by a pneumatic actuator
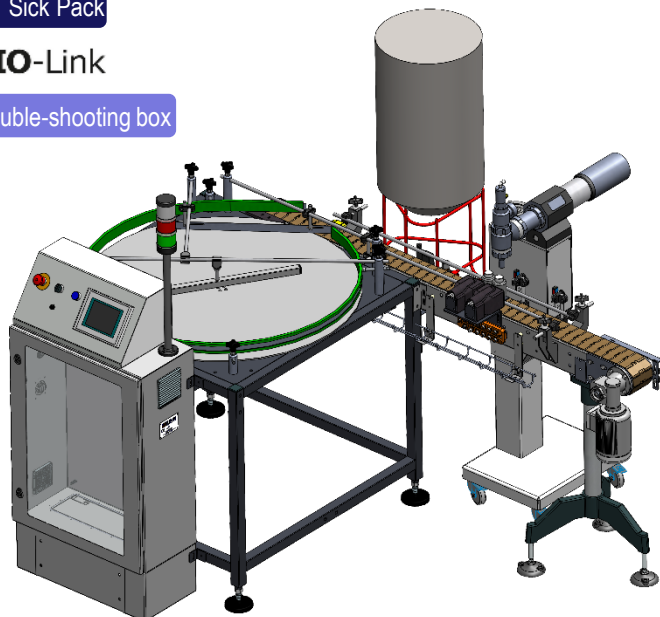 - 1 stand for the dosing unit, adjustable in height by a crank (250mm travel)
  - 75L tank

Control cabinet

It is mainly consist of :
- 1 switch-disconnector
- 1 safety relay to manage the emergency stop
- 1 set of fuse holders and circuit breakers
- 1 power supply for the low voltage circuits
- 1 machine power contactor
- 2 drives to power and control the speed of the conveyor and the distribution table
- 1 Siemens S7-1200 PLC
- Terminal blocks

Operator console

- ✓ Siemens SIMATIC HMI KTP700 Basic (7") touchscreen KTP700 Basic (7 inch)
- ✓ It includes all the dialogue components to control the dosing-filling part of the system

More information on www.erm-automatismes.com

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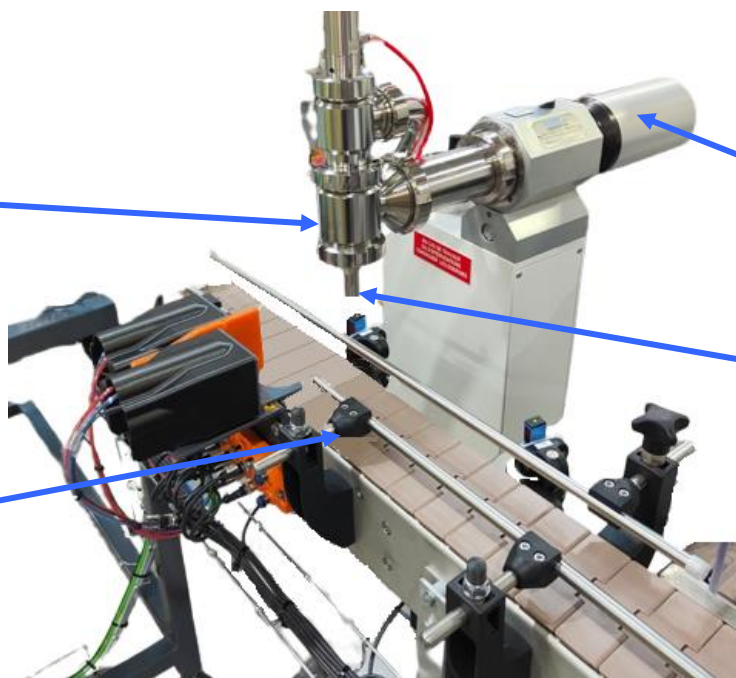Didactique | Robotique | Fab&Test | Energies

System architecture (continued)

Pneumatic volumetric dosing unit in stainless steel and anodised aluminium.

Graduated drum for manual dosing

Interchangeable 8 mm outlet nozzle

Pneumatic positioning cylinders

Pedagogical approach
- ✓ Functional analysis.
- ✓ Study of technologies: electrical, pneumatic, .
- ✓ Dosing of liquid, pasty and semi-pasty products.
- ✓ Programming.
- ✓ Contrôle and supervision.
- ✓ Dynamic settings of the dosing machine.
- ✓ Production.
- ✓ Maintenance of food processing systems

Training activities
- ✓ Configuration of an IO-Link smart sensor via NFC
- ✓ Design of a maintenance part and manufacturing in 3D printing
- ✓ Launching a production order and format change
- ✓ Configuration of an IO-Link master port in "Restore" mode
- ✓ Preventive and corrective maintenance of the pneumatic dosing unit

Related & Complementary products

Sick TDCE Smart IoT gateway Kits & Smart sensors

SICK
Sensor Intelligence.

www.erm.li/sk10

Sick Smart IoT gateway case & Smart Sensors Case (SK00)

The Sick Smart IoT gateway case & Smart Sensors contains 6 sensors and a conveyor, to carry out 5 projects / application cases

SICK
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IO-Link pack of electrical and pneumatic measurements (IO00)

Study and implementation of a communication and IoT compatible energy measurement system

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