ELEKTROMAG MAKİNE SANAYİİ ve TİC. A.Ş.

FUNCTIONAL SPECIFICATION (FS)

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AUTOMATIC ROTATIVE PLASTERING 6 HEAD (Pilfer Proof) CAPPING MACHINE

M-KAP-B01

YOUR INNOVATION SOLUTION PARTNER

Document Approved

Prepared by

Name	Department/Function	Date	Sign

Approved by

Name	Department/Function	Date	Sign

Revised History

Rev.No.	Date	Prepared by	Description of Changement
01	12.01.2020		Initial Version

1. Purpose

The purpose of this functional specification document is to define the design and function of the Rotative Capping Machine(Pilfer Proof) and its components project by the system designer

2. Scope

This functional specification document is prepared for Rotative Capping Machine(Pilfer Proof) automation system and its related components.

3. System / Description of Equipment

3.1 Equipment / Description of System

The Rotative Capping Machine(Pilfer Proof) which is EMG-20-036 order code,consist of following equipment and components.

Equipment Name	Equipment Code	Equipment / Serial No
Rotative Capping Machine(Pilfer Proof)	M-KAP-B01	3858

3.2 Machinery Technical Data

Machine	ROTATIVE CAPPING MACHINE (PILFER PROOF)
Type	M-KAP-B01
Machine-No	3858
Weight	600 kg
Supply Voltage	3 Faz 380V 50 Hz
Power Consumption	1.5 kW
Air Sply	4-6 bar

Automation Panel / Rotative Capping Machine(Pilfer Proof)– 3858
The equipment has stainless steel electric cabinet
Rotative Capping has done in Turkish
AC supply
DC supply
Cabinet Dim : 950L x 860W x 1000H
Power Supply System
Operator Consule
Touchable monitor Turkish / english user screen
Controller (CPU)
Beckhoff CX5130-0122 Basic Cpu Modüle CX5130 Microsoft PC based Windows 7 Embedded Software
Electric installation
Protection class IP44, IP32, P55, IP65 IP66 exist
Sensors have plug in-out design
All electrical connections are numbered and labeled.

3.3 Rules and Regulations

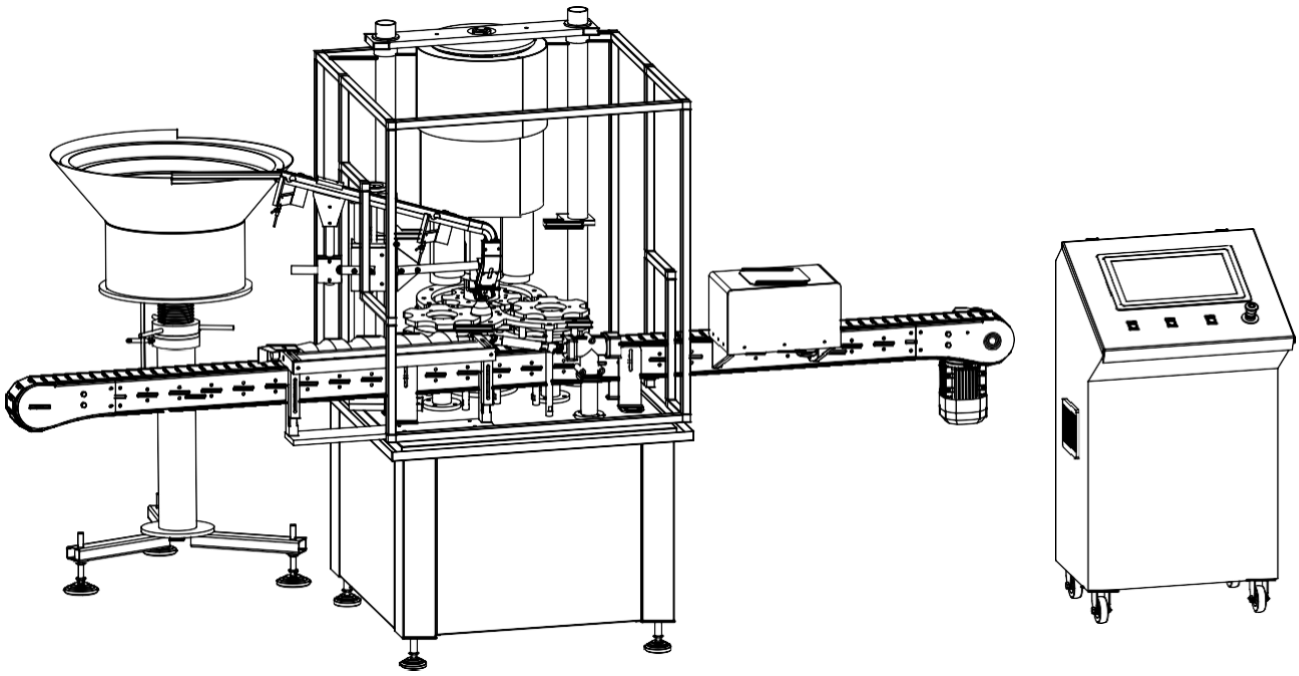
The machine is designed and manufactured in accordance with the following rules and regulations.

ISO 9001 : 2015	EMG-20-036.3858.FS_EK.3	Automatic packaging machines design, development, production, sale and service
042119-TSEK-02/01	EMG-20-036.3858.FS_EK.4	Packaging Machines Capping Machines (Edge Crimping, Screw Gear Pressure, Rake Screw)

3.4 System Drawing

Rotative Capping Machine(Pilfer Proof) Elektric Scheme, I/O List	EMG-20-036.3858.FS_EK.1
Rotative Capping Machine(Pilfer Proof) Compenent List	EMG-20-036.3858.FS_EK.2

3.5 System General View



4. Functional Description

PLASTERING CLOSURE consists of the following equipment and systems;

- Rotative Plastering Capping Machine
- User and Management Panels PC & Software

It performs all electrical management functions of plastering closure.
All operation systems are managed by automation board. The computer system is also connected to the clipboard, and inputs from CPUs are displayed in the user interface thanks to the software.

The machine has parameters that can be adjusted within the scope of its operational specifications and manages the process fully automatically.

Rotary plastering capping machine is used for the capping process of bottles with caps fed into the system.

The Rotary plastering capping machine performs capping according to the bottle length set within the specified limits. Bottles entering the star together with the Helix from the constantly fed conveyor mechanically take the lid in the cap channel. Plastering heads moving on 6 dwell perform non-stop plastering. Bottles plastered with the cap are controlled by passing through the cap Asset Control Unit located on the exit conveyor. Reject if there is no cap on the bottle.

Security and operational alarms are available in each system.
The computer infrastructure records these alarms simultaneously.

5. Assembling Parts Description

5.1 Elektric Cabinet - Automation System & PC

5.2 Function

CPU control unit, driver and electrical components, transmitters ve convertors

5.3 Operational Function

For all line equipment components;
HMI Sytem substructure, Monitor
User Management, data management, programme management and limit decided will be manage by using that system . Data archived is happen by user interface.

6. Sistem Function

6.1 Operational Mods

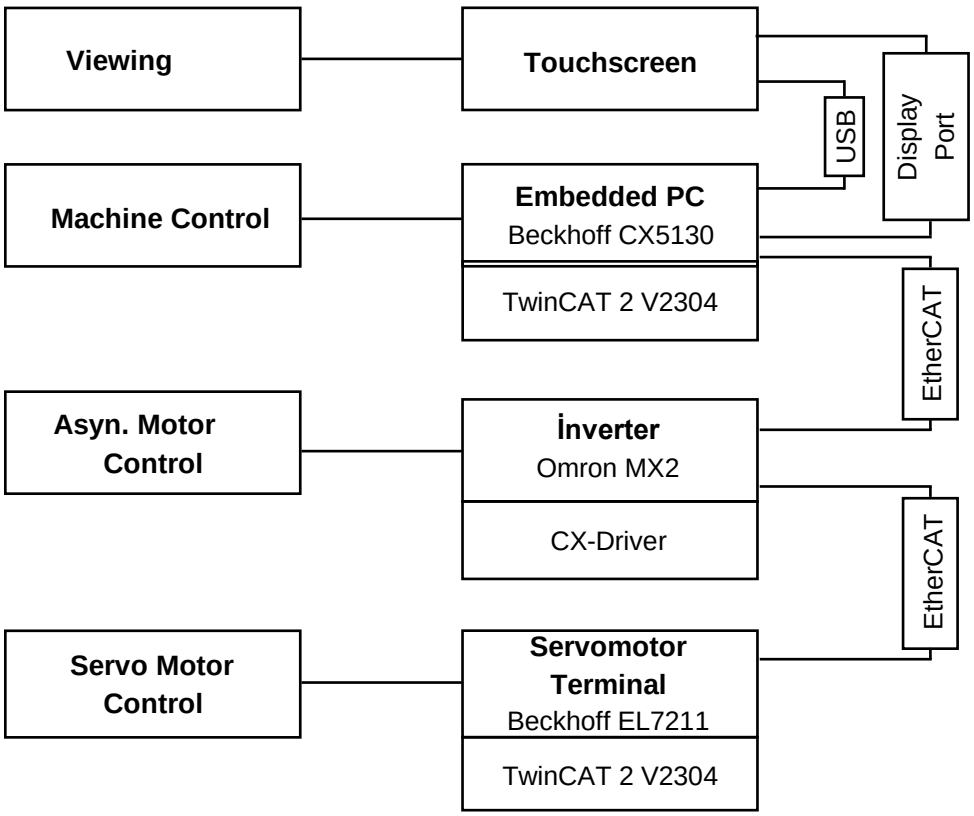
Rotative Plastering Operation Mods

Manual Control	It works as long as the jog button is pressed and held
Receipt Control	Works according to selected receipt type.

7. Description of used Software

System Architecture ;

Rotative Plastering Capping Machine



7.1 Software General View

Rotative Plastering Capping Machine	
Device	Embedded PC
Manufacturer / Type	CX5130-0122
Hardware Version	V3.8 2019-04-05
Operating System	Windows Embedded Standart 32-Bit
Operating System Version	6.1, Build 7601

7.2 Alert Signal

Each line equipment has an illuminated alarm signal. Alarms are recorded.

8. Start Conditions

To start the automation system, the following prerequisites must be met.

- Open the power
- User input must be made from the HMI PC panel
- Input Receipt
- It can start operations within the user's authority

9. Error Situations

- The system works even if the dashboard covers are open.
- Alarms are displayed on the screen.After resetting the Alarm, the system can be started.
- Alarms can be accepted within the information.
- Alarms are stored in a log and cannot be deleted.
- It can be exported as a paper copy if desired.(printer is not included in the system).

10. Description of Security Concept

10.1 General Description

Safety markings are included on the Rotative Plastering Capping Machine.

10.2 Emergency Stop Button

The machine has an emergency stop button. The machine can be stopped manually immediately using an E-stop button. The E-stop button is connected to a safety controller.

Switch No	Function	After activated	Seen Messages
100	Emergency stop push button at operator panel	System stops	HMI – Emergency Stop Hold

11. System Error In Case of Common Source of Error

11.1 Power Feeding

In case of power failure, the automation system stops. The system is completely de-energized. The automation panel must be connected to an uninterrupted power supply for process continuity.

12. Appendix

EMG-20-036.3858.FS_EK.1 : Rotative Plastering Capping Machine Elektric Scheme, I/O List
EMG-20-036.3858.FS_EK.2 : Rotative Plastering Capping Machine Compenent List
EMG-20-036.3858.FS_EK.3 : Automatic packaging machines design, development, production, sale and service
EMG-20-036.3858.FS_EK.4 : Packaging Machines Capping Machines (Edge Crimping, Screw Gear Pressure, Rake Screw)

13. Comments and Explanation