ELEKTROMAG MAKİNE SANAYİİ ve TİC. A.Ş.

FUNCTIONAL SPECIFICATION (FS)

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AUTOMATIC VOLUMETRIC 8 NOZZLE FILLING MACHINE

M-ODM-A05-CF

YOUR INNOVATIVE SOLUTION PARTNER

Document Approved

Prepared by

Name	Department/Function	Date	Sign

Approved by

Name	Department/Function	Date	Sign

Revised Date

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 Volumetric 8 Nozzles Filling Machine and its components project by the system designer.

2. Scope

This functional specification document is prepared for Volumetric 8 Nozzles Filling Machine automation system and its related components.

3. System / Description of Equipment

3.1 Equipment / Description of System

The Volumetric 8 Nozzles Filling Machine which is EMG-20-036 order code,consist of following equipment and components.

Equipment Name	Equipment Code	Equipment / Serial No
Volumetric 8 Nozzles Filling Machine	M-ODM-A05-CF	3842

3.2 Machine Technical Data

Machine	Volumetric 8 Nozzles Filling Machine
Type	M-ODM-A05-CF
Machine-No	3842
Weight	1000 kg
Supply Voltage	380V
Power Consumption	5.5 kW
Air Sply	4-6 bar

Automation Panel / Volumetric 8 Nozzles Filling Machine – 3842
The equipment has stainless steel electric cabinet
Panel marking is exist.
AC supply
DC supply
Cabinet Dim : 1035L x 940W x 1000H (mm)
Power Supply System
Operatör Consule
Touchable monitor Turkish / english user screen
Controller (CPU)
Beckhoff CX5130-0122 Basic Cpu Modüle CX5130 Microsoft PC tabanlı Windows 7 Embedded Software
Electric installation
Protection class IP44, IP32, P55, IP65 IP66 mevcut
Sensors have plug in-out design.
All electrical connections are numbered and labeled..

3.3 Rules and Regulations

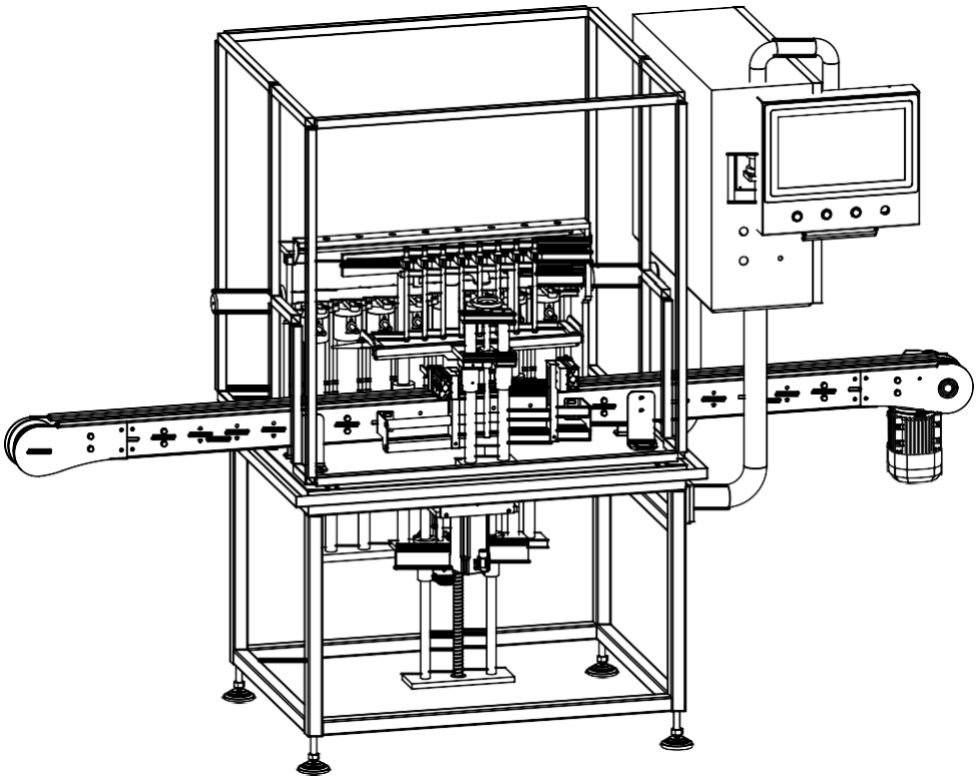
The machine is designed and manufactured in accordance with the following rules and regulations.

ISO 9001 : 2015	EMG-20-036.3842.FS_EK.3	Automatic packaging machines design, development, production, sale and service
042119-TSEK-03/01	EMG-20-036.3842.FS_EK.4	Packaging Machines Capping Machines (Edge Crimping, Screw Gear Pressure, Rake Screw)

3.4 System Drawing

Volumetric 8 Nozzles Filling Machine Electric Scheme, I/O List	EMG-20-036.3842.FS_EK.1
Volumetric 8 Nozzles Filling Machine Compenent List	EMG-20-036.3842.FS_EK.2

3.5 System General View



4. Functional Description

Volumetric Filling consists of the following equipment and systems;

- Volumetric 8 Nozzles Filling Machine
- User and Management Panels PC & Software

It performs all electrical management functions of Volumetric Filling.
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.

The filling machine performs filling in the volume set within the specified limits. The system can fill a maximum of 8 bottles at a time. Bottles taken to the filling chamber with the help of cutters from the constantly fed conveyor open the rotary valve and the filling process begins when the relevant sensors and valves are active. When the process is complete, the cutters are opened and the next group of 8 is taken to the filling chamber.

Volumetric 8 nozzle filling machine is used for the filling process of bottles fed into the system.

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 components;

HMI System 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. System Function

6.1 Operational Modes

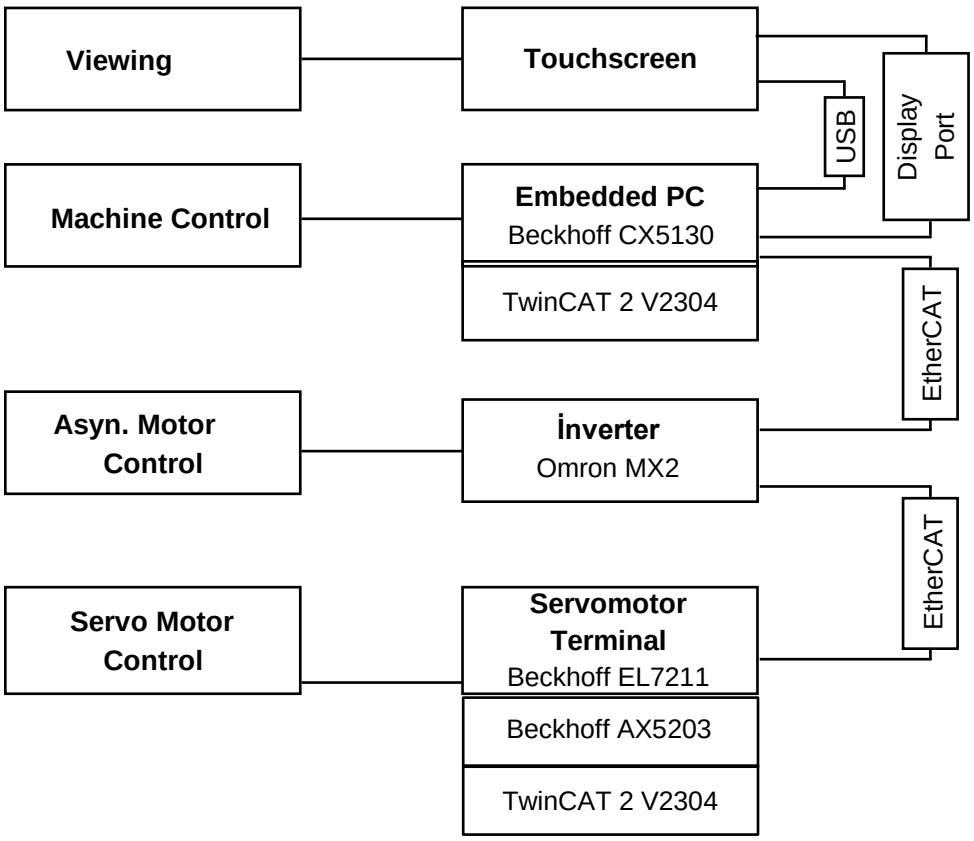
Volumetric 8 Nozzles Filling Machine Operation Modes

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 System

System Architecture ;

Volumetric 8 Nozzles Filling Machine



7.1 Software General View

VOLUMETRIC 8 NOZZLES FILLING 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 Condition

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 Filling 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	Fonksiyon	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-20-036.3842.FS_EK.1 **:** Volumetric 8 Nozzles Filling Machine Elektric Scheme, I/O List
EMG-20-036.3842.FS_EK.2 **:** Volumetric 8 Nozzles Filling Machine Compenent List
EMG-20-036.3842.FS_EK.3 **:** Automatic packaging machines design, development, production, sale and service
EMG-20-036.3842.FS_EK.4 **: :** Packaging Machines Capping Machines (Edge Crimping, Screw Gear Pressure, Rake Screw)

13. Comments and Explanation