Profile Introduction.

PRO AUTOMACHINES. is thankful to you for choosing its 'STEPPER WRAPROUND LABELING MACHINE'. It is very essential to go through & follow the instructions, very carefully, in this manual for a trouble-free operation of this machine.

Buyer Details

Clients Name **: DUNCAN HEALTHCARE PRIVATE LIMITED**

Machine Manufacturer

Machine Manufacturer	:	PRO AUTOMACHINES.
Address	**:**	Factory Address: - Kumbar pada, Near Waghoba Mandir, Virar(E), PALGHAR-401303. Mobile No :-8591264010
Machine Name	:	STEPPER WRAPROUND LABELING MACHINE.
Machine Serial No.	:	PRO01
Contact Person	:	Mr. Adesh Joshi.

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Prepared By

Name	**Adesh Joshi.**
Profile Designation	**Director**
Role	**Writing out DQ protocol For Duncan Healthcare Pvt.Ltd.**
Responsibilities	**Writing out DQ protocol for Duncan Healthcare Pvt.Ltd. Furnishing information of Duncan Healthcare Pvt.Ltd. DQ document.**

Pre-Approval:

M/s. PRO AUTOMACHINES

	Name	Designation	Signature	Date
Prepared By.	**Adesh Joshi**	**Director**		
Reviewed By				

M/s. Duncan Healthcare Pvt.Ltd.

	Person Name	Designation	Signature	Date
Reviewed By.				
Reviewed By.				
Approved By.				

1. Objective:

To establish the documented evidences for the qualification of machine design as per the user requirement specifications (URS).

2. Scope:

The scope of this document is limited to the Design Qualification for Stepper PLC Wraproud Labeling Machine. The support utilities required for the functioning of the machine are not within the scope of this qualification. The equipment shall meet all the requirements mentioned in the URS.

3. Responsibilities

The following responsibilities are shared by
i) **Duncan Healthcare Pvt.Ltd.**

Responsibilities of M/s. PRO AUTOMACHINES are:

- To design, engineer and provide the complete technical details of the equipment pertaining to its design qualification.
- Machine G.A drawing.
- Component details, List of brought out items, and their make, model & quantity.
- Details of Utilities.
- Material of construction (MOC) of components.

Responsibilities of Duncan Healthcare Pvt.Ltd. are:

- To provide the URS for the equipment.
- To view the Design qualification and give its approval.

4. Machine Description

Our Labeling Machine is designed for applying the labeling on Bottles. The machine is an assembly with a SS structure label applicator at the Back side of the machine. Stepper Motor on the label applicator activates the unit for unwinding & rewinding process.

It is very simple to operate and have maximum accuracy. The operator simply has to feed the operating parameters in the HMI and press the start push button to start the machine operation.

The machine is well equipped with a single-phase control panel consisting electrical as well as electronics components. All components are highly over rated and necessary safety devices are employed to protect both the operator and the equipment.

The overall machine tolerance is +/-1mm at variable speed.

Safety features are provided in the machine, which are as per the GMP standards and is in compliance with set industrial standards

The brief description of the machine is described in the functional description,

Salient Features:

- All Contact parts are of SS 304.
- Various assemblies can be removed for cleaning easily.
- Simple operation and easy maintenance.
- Operator Panel for easy operation.

5. Indented and prohibited use of the System:

Intended Use:
The machine is designed to perform for labeling on Bottle.

Prohibited Use:
Any other use of the Machine will be deemed to be not in accordance with its Design and specified purpose.

6. Safety Features on the Machine.

Sr. No.	Description
1	Emergency Switch on the Operator Panel to stop the machine in any emergency condition.
2	Ferruling on the cable for proper traceability.
3	MCBs inside the Control Panel to trip off if any short circuit occurs.
4	Grommets provide inside the panel to avoid cut hazard to the cables.

Functional Description of the Machine.

1) Conveyor:

The conveyor is mounted horizontally on the machine structure. It is mainly used for transporting the bottles required during the labeling operation. Railings are provided on the conveyor for guiding the bottles during their travel. Adjusting knobs are provided for adjusting the distance of the conveyor as per the bottle height and diameter.

2) Spacer:

The Spacer unit is located at the left-hand side of the machine if viewed from front. The unit consists of motor with spacer located at the left side of the conveyor. It's an assembly with a circular disk and it is linked with the motor. The disk does the function of maintaining proper tension to the bottles during the machine is in operation. The Spacer Unit is mainly used for singling or providing space in between the bottles during operation.

3) Wraproud:

The Wrap Round Assembly is located at the left-hand side of the Machine. The assembly consists of sponge belts mounted at the front side of the conveyor.

The belt linked with the motor can be rotated at variable RPM, pulleys and shafts are mounted inside this unit for swift movement of the belt. The opposite side belt can be adjusted in linear direction by rotating the hand wheel provided on the unit.

The wraproud assembly ensures pressing of labels on the bottles firmly.

4)Label Applicator:

The entire Machine consists of one Label Applicator described as Front Side Label Applicator. The label applicator is located at the back side of the conveyor. The entire unit can be adjusted in three axis, vertical axis, linear axis and in angular position. The label applicator consists of following units described below:

- **Label Roller Holder:**
  It's an assembly with a holding or resting spool with a vertical roller for holding the label roller. A core lock is provided on the spool for locking he label roller during fitting of the roller.

- **Dancer Roller:**
  The dancer roller is located next to the label roller holder. It is spring mounted constructed with aluminum for maintaining tension to the label strip during the label actuator is in operation.

- **Guide Rollers:**
  There is total nine nos. of guide rollers on a label actuator. Two rollers are knurled whereas the other seven are plain constructed with aluminum. All these rollers are used for guiding the label strip.

- **Rubber Roller:**
  It's a rubber roller coupled with a Stepper motor for pulling the label strip from the reel holder. The detail description of the Stepper Motor is described in the Technical Specification.

- **Label Presence Sensor:**
  The label presence sensor is used for sensing the presence of label on the strip.

- **Locking Roller:**
  The locking roller with a locking plate is located next to the traction roller. It's a rubber roller used for locking the label with the traction roller.

- **Peeling Plate:**
  The rectangular shaped peeling plate is located above the conveyor, fabricated with SS 304. It is bolted with two nos. of Allen bolts on the bracket of the label applicator. It is basically used for peeling the release paper for pasting the labels on the bottles.

- **Rewinder Unit:**
  The rewinder unit is linked with the Stepper Motor. The rewinder does the function of rewinding the waste label.

5) Motors:

There are total **Four** numbers of motors on the Machine. All the motors are described below in the tabular format.

Sr. No.	Motor Description
1	**Spacer Motor: 1 Nos. of Motor** The spacer motor is used for giving rotary motion to the spacer unit for singling the bottles to form a line.
2	**Conveyor Motor: 1 No. of Motor** The conveyor motor is used for running the conveyor for transporting the bottles for performing the labeling operation.
3	**Labeler Stepper Motor: 1 Nos. of Motor** The Stepper motor is used for activating the label applicator unit for unwinding & rewinding the labels.
4	**Wrap Round Motor: 1 No. of Motor** The Wrap Round Motor is used for providing rotary movement to the Wrap Round Assembly for pasting the labels firmly.

6) Sensors:

There is total **Two** numbers of sensors provided on the Machine. All the sensors are described below in the tabular format.

Sr. No.	Sensor Description
1	**Label Presence Sensor: - (1- Nos)** This sensor senses the presence of label strip. Absence of label if sensed the Stepper motor rotates twice.
2	**Product Sensor:-(1- Nos)** This sensor senses the presence of Bottles and signals the Stepper Motor for activating the Label Applicator.

7)Control Panel:

It's a single-phase machine with a control panel located at the both sides. The panel consists of electrical as well as electronics components described in the section Electrical Component List.

8)Operator Panel:

The operator panel is described below:

9)HMI Screens:

The HMI mainly is used to set the Conveyor Speed, Machine speed, Delay timing. Information to set the label dispensing time. When the HMI starts glowing for operation first screen of Pro Auto machines gets displayed on the HMI Screen. The detail description of the HMI Screens is described in the Technical Manual.

Sr. No.	Description	Function
1	Green Start Push Button	To start the Machine Operation.
2	Red Push Button	To stop the Machine Operation.
3	Emergency switch	To Stop the machine in any emergency situation.
4	HMI Panel	To set the Machine Parameter

8. Technical Specification.

Sr. No.	Description	
	Commercial Data	
1	Machine Manufacturer	PRO AUTOMACHINES
2	Machine Name	Stepper PLC Wraproud Labeling Machine.
3	Year / Month of Equipment Mfg.	DEC 2023.
	Mechanical Data	
1	Machine dimension	As per G.A drawing
2	Approx. Weight	300 Kg Approximately
3	Contact Parts	SS 304/Aluminum
	Electrical Data	
1	Machine Voltage	230 Voltage AC, Single Phase, 50 Hz.
2	Customer Power Plant Supply	230 Voltage AC, Single Phase, 50 Hz.
3	Main Cable Size	1.5 SQ MM 3 Core

8.1 Major Component List

No.	Part Name	Material/Grade
1.	Machine Body	SS 304
2.	Conveyor Belt	Acetal
3.	Wraproud Unit	ALUMINIUM/ SS
4.	Spacer Unit	ALUMINIUM / SS
5.	Wraproud Belt	Sponge Coated
6.	Spool	ALUMINIUM
7.	Peeler Plate	SS 304
8.	Label Head Applicator.	ALUMINIUM

Remarks:

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9. Labeling Machine Alarm List.

Sr. No.	Alarm list	Verified (Yes/No)
1	Label Roll Break Fault	
2	Label length Mismatch	
3	Emergency Stop Alarm	