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1.0 PROTOCOL APPROVAL:

Signing of this approval page of Protocol indicates agreement with the qualification approach described in this document. If modification to the qualification approach becomes necessary, an addendum shall be prepared and approved. The protocol cannot be used for execution unless approved by the following signatories.

This Installation Qualification protocol of Blister pack machine has been reviewed and approved by the following signatories:

FUNCTION	NAME	DESIGNATION	DEPARTMENT	SIGNATURE	DATE
PREPARED			QUALITY		
BY			ASSURANCE		
			QUALITY		
			ASSURANCE		
REVIEWED BY			ENGINEERING		
			PRODUCTION		
			HEAD		
APPROVED			OPERATION		
ВҮ			QUALITY ASSURANCE		

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INSTALLATION QUALIFICATION FOR BLISTER PACKING MACHINE

2.0 **OVERVIEW:**

2.1 **OBJECTIVE:**

The objective of developing and executing this protocol is to collect sufficient data pertaining to the Blister pack machine and define the qualification requirements and acceptance criteria for the unit. Successful completion of these qualification requirements will provide assurance that the Blister pack machine was installed as required in Soft gel Blister packing area.

The Qualification of Blister pack machine performed in view of Soft gel Blister packing area of manufacturing facility.

2.2 PURPOSE:

The purpose of this protocol is to establish documentary evidence to ensure that the Blister pack machine received matches the Design specification and also to ensure that it is properly and safely installed.

2.3 SCOPE:

The installation qualification protocol shall be followed for installation qualification of Blister pack machine. This protocol defines the methods and documentation that shall be used to evaluate the system installation in accordance with the specifications and intended use. Successful implementation of this protocol shall verify that the systems installed meet the requirements specified.

2.4 RESPONSIBILITY:

In accordance with protocol, following functions shall be responsible for the qualification of system.

Execution Team (Comprising members from Production, Engineering and Quality Assurance) and their responsibilities are following:

- > Prepares the qualification protocol.
- Ensures that the protocol is in compliance with current policies and procedures



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on system Qualification.

- > Distributes the finalized protocol for review and approval signatures.
- > Execution of Qualification protocol.
- Review of protocol, the completed qualification data package, and the final report.
- > The installation checks, calibration, SOP identification, identification features, identification of utility supply shall be carried out by engineering persons.
- ➤ The production operator / supervisor shall carry out the cleaning and operation of machine.

Head – Production/ Engineering:

- ➤ Review of protocol, the completed qualification data package, and the final report.
- Assist in the resolution of validation deficiencies.

Head – Operation and Quality Assurance:

• Review and approval of protocol, the completed qualification data package, and the final report.

2.5 EXECUTION TEAM:

The satisfactory installation of the Blister packing machine shall be verified by executing the qualification studies described in this protocol. The successfully executed protocol documents that the Blister packing machine is installed satisfactorily.

Execution team is responsible for the execution of installation qualification of Blister packing machine and Execution team comprises of:

NAME	DESIGNATION	DEPARTMENT	SIGNATURE	DATE

PHARMA DEVILS

INSTALLATION QUALIFICATION FOR BLISTER PACKING MACHINE

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3.0 ACCEPTANCE CRITERIA:

- 3.1 The Blister pack machine shall meet the system description given in design specification.
- 3.2 The Blister pack machine shall meet with the acceptance criteria mentioned under the topic "Identification of major components".
- 3.3 All material of constructions of the contact parts to be checked as per the specifications.
- 3.4 Safety feature, Utility & calibration shall be identified.

4.0 REVALIDATION CRITERIA:

The machine has to be revalidated if

- There are any major changes, which affect the performance of the equipment.
- After major breakdown, maintenance is carried out.
- As per revalidation date and schedule.

5.0 INSTALLATION QUALIFICATION PROCEDURE

5.1 EQUIPMENT DESCRIPTION:

Equipment Name	:	Blister packing machine
Supplier / Manufacturer	:	Elmach Packages (India) Pvt. Ltd.
Dimension (LXWXH)	:	3480 mm X 1100 mm X 2180 mm
Model	:	EPI 2500
Serial no.	:	2608
Base film	:	Thermo-formable, bi-axially oriented, non- toxic pvc, pvc with pvdc coating.
Lidding material	:	Hard tempered Aluminium foil with heat sealable coating
PVC base film width	:	212 mm (Max)
PVC film thickness	:	0.25 mm to 0.30 mm
PVC reel diameter	:	440 mm (Max)
Aluminium foil width	:	208 mm (Max)
Aluminium foil thickness	:	0.02 mm to 0.03 mm
Aluminium reel diameter	:	220 mm (Max)
Format area	:	Min 25 MM X 196 MM
		Max 102 MM X 196 MM
Advance length	:	110 mm (Max)
Punched out pack length	:	204 mm (Max)



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Punched out pack width	:	110 mm (Max)
Output	÷	Max 140 strokes / min (Depend on the Product).
Air Pressure Required	:	Minimum 6 bar (Kg/cm ²)
Cooling water Flow Rate	:	2 lit / min. at 13 °C to 16 °C
Location	:	Blister packing area II

Blister packing machine comprises of following components.

- Hopper
- Vibrator
- Forming Roller (Assembly)
- Feeding Box
- Web guide track
- Sealing Roller (Assembly)
- Guide roller
- Machine panel & cover
- Trim chute
- Embossing Unit
- Perforation Unit
- Pack pick and place assembly
- Batch Code printing unit
- Punching station
- Conveyer belt
- Emergency switch

The Blister packing machine EPI –2500 is an automatic blister packing machine utilized for packing of tablets/capsules in blister packs. The EPI 2500 machine draws PVC base film from a reel feed assembly in to the forming station, where blister are continuously formed. The formed web moves over the guide track to the feeding station. Here using a suitable feeding attachment, product is automatically filled in the blister cavities. Filled web moves to the sealing station. Lidding material, drawn from the reel stock, is feed to the sealing station. Lidding material gets sealed with the filled web enclosing the product hermetically (airtight closure protecting the product from outside contaminates). The filled and sealed web is fed by an indexing mechanism into the pack punching station. Here, the web gets punched into the packs as per layout. The blister pack are either collected in bins or transferred on a conveyor belt and conveyed for further handling. The trim waste is sheared off into small pieces for easy handling and disposal.

All the operational controls and sequences of the machine are arranged by Man-Machine Interface mounted conveniently located in front of the machine and mechanical cams, which determines the positional accuracy of the machine with the feed pack.



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5.2 INSTRUCTION FOR FILLING THE CHECKLIST:

- 5.2.1 In case of identification of major component actual observation should be written in specified location.
- 5.2.2 In case of the compliance of the test actual observation should be written in specified location.
- 5.2.3 For identification of utilities actual observation should be written in specified location.
- 5.2.4 Give the detailed information in the summary and conclusion part of the installation Qualification report.
- 5.2.5 Actual observation of the component should be written in specified location.
- 5.2.6 Whichever column is blank or not used 'NA' shall be used.



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5.3 INSTALLATION CHECKLIST:

Installation checklist is as follows:

S.No.	Statement	Method of Verification	Actual observation	Checked By Sign/Date
1.	Verify the purchase order copy and PO no. Shall be written in observation column	Physically		
2.	Verify that the "As Built" drawing is complete and represents the design concept.	Physically		
3.	Verify that major components are securely anchored and shock proof.	Physically		
4.	Verify that there is sufficient room provided for servicing.	Physically		
5.	Verify that all piping and electrical connections are done according to the drawings.	Physically		
6.	All access ports are examined and cleared of any debris.	Physically		
7.	Safe electrical connections.	Physically		
8.	Sufficient room provided for maintenance.	Physically		
9.	Equipment identification nameplate visible.	Physically		
10.	Units installed on foundation are secure in place as per manufacturer's recommendations.	Physically		
11.	Verify that there is no observable physical damage	Physically		

Remark:	 	 	

Reviewed by (Sign/Date)



PROTOCOL No.:

5.4 IDENTIFICATION OF MAJOR COMPONENTS:

Describe each critical component and check them and fill the inspection checklist.

System Components	Design	Specification	Method of Verification	Actual Observation	Checked By Sign/Date
	Туре	ATDC 90S-4	Physically / Visually		8
	Make	Rotomotive	Physically / Visually		
Main motor	Sr. No.	M09142081	Physically / Visually		
	Tech. Specification	415 V, 1.5 HP, 1.1 KW, 50 Hz, 1390 RPM	Physically / Visually		
	Type	RU-56-3G	Physically / Visually		
	Sr. No.	J`HUG-24471	Physically / Visually		
Infeed motor	Make	Remi	Physically / Visually		
inteed motor	HP	1/8	Physically / Visually		
	Voltage	220 to 230V	Physically / Visually		
	RPM	75	Physically / Visually		
	Туре	2-63	Physically / Visually		
Aluminium foil	Sr. No.	D-525	Physically / Visually		
draw motor	Make	Sudarshan Gears	Physically / Visually		
	Tech Specification	0.25 HP, 60 RPM	Physically / Visually		
VFD for Main motor	Model	ATV312HU15N4	Physically / Visually		
motor	Sr. No.	8B 1425194179	Physically / Visually		
	Make	Schneider	Physically / Visually		
	HP	2 HP	Physically / Visually		
	Model	ATV12H037M2	Physically / Visually		
VFD for Aluminium foil	Sr. No	8B 1419849094	Physically / Visually		
motor	Make	Schneider	Physically / Visually		
	HP	0.5	Physically / Visually		



System Components	Design	Specification	Method of Verification	Actual Observation	Checked By Sign/Date
	Туре	Box 063	Physically / Visually		
Gear box	Sr. No.	G09140969	Physically / Visually		
	Make	Rotomotive	Physically / Visually		
Control Panel	Make	Elmach	Physically / Visually		
	Make	Automatic Electric Ltd.	Physically / Visually		
Ammeter	Size	98 mm X 98 mm	Physically / Technical Specification		
	Current Range	0 to 20 Amp	Physically / Visually		
	Quantity	02	Physically / Visually		
Potentiometer	Make	Bourns, Mexico	Physically / Visually		
1 ochhometel	Resistance	10 k Ohm (±5%)	Physically / Visually		
Forming	Make	Datalogic	Physically / Visually		
temperature controller	Туре	QD-10	Physically / Visually		
	Range	0° to 450° C	Physically / Visually		
Sealing	Make	Datalogic	Physically / Visually		
temperature controller	Туре	QD-10	Physically / Visually		
	Range	0° to 450° C	Physically / Visually		
Perforation	Make	Datalogic	Physically / Visually Physically /		
temperature controller	Туре	QD-10	Visually Physically /		
	Range	0° to 450° C	Visually Physically /		
Temperature	Туре	Thermocouple type'J'	Technical Specification		
sensor used in preheating roller and in sealing roller	Metals used in thermo couple	Fe-con	Physically / Technical Specification		
	Make	Shabari	Physically / Technical Specification		
Temperature sensor used in	Туре	PT-100	Physically / Visually		



System Components	Design Specification		Method of Verification	Actual Observation	Checked By Sign/Date
Perforation tool	Make	Shabari	Physically / Visually		
3332	Туре	Cartridge	Physically / Visually		
Heater used in	Length & Diameter	225 mm, 15.8 mm (Ø)	Physically / Technical Specification		
Heating roller	Wattage & Voltage	300 WATTS & 220 VOLTS	Physically / Technical Specification		
	Quantity	8 No's	Physically / Visually		
	Туре	Cartridge	Physically / Visually		
Heater used in	Length & Diameter	225 mm, 15.8 mm (Ø)	Physically / Technical Specification		
Sealing heater	Wattage & Voltage	300 watts & 220 V	Physically / Technical Specification		
	Quantity	8 No's	Physically / Visually		
SMPS	Make	Shavison	Physically / Visually		
	Type	FX3U-48M	Physically / Visually		
PLC	Make	Mitsubishi	Physically / Visually		
	Sr. No.	1490124	Physically / Visually		
	Туре	FX 2N - 16EX	Physically / Visually		
PLC EXTN.	Make	Mitsubishi	Physically / Visually		
	Sr. No.	14X0683	Physically / Visually		
	Model	E1022	Physically / Visually		
	Туре	06871	Physically / Visually		
MMI	Make	Mitsubishi (Beijer)	Physically / Visually		
	Sr. No	1344-532	Physically / Visually		1
Limit Switch used for 'No PVC'	Make	Kaycee	Physically / Visually		
Solenoid coils	Туре	MSFG-24/42-50/60	Physically / Visually		



System Components	Design	Specification	Method of Verification	Actual Observation	Checked By Sign/Date
	Make	Festo	Physically / Visually		
	Tech Spec	24Vdc	Physically / Visually		
	Туре	0.750- IF	Physically / Visually		
Dimmer for feeding unit	Make	Automatic electric	Physically / Visually		
	Capacity	202 KVA	Physically / Visually		
Photocell for product level	Make	P&F	Physically / Visually		
Vibrator	Make	Vibro Mex	Physically / Technical Specification		
Pneumatic	Туре	DNC-80-40-PPV-A	Physically / Visually		
cylinder for PSR	Make	FESTO	Physically / Visually		
Pneumatic	Type	C0211025	Physically / Visually		
cylinder for Forming	Make	SCHRADER DUNCAN	Physically / Visually		
Flow regulator	Type	DNC-32-40-PPV-A	Physically / Visually		
for PRC	Make	FESTO	Physically / Visually		
T294	Make	SHAVO NORGREN	Physically / Visually		
Filter regulator	Type	SBO2-221-M2 KB	Physically / Visually		
Lubricator	Make	Shavo Norgren	Physically / Visually		
Lubricator	Type	SL10M-2GQ	Physically / Visually		
A :u6:14	Make	Shavo Norgren	Physically / Visually		
Airfilter	Туре	SF10G-2G-M2T-N	Physically / Visually		
W. G	Make	Manometer	Physically / Visually		
Vacuum Gauge	Range	-760 mm to 0 mm of mercury column	Physically / Visually		
Duogavus acesa-	Make	Manometer, Shavo	Physically / Visually		
Pressure gauge	Range	0 -10 (kg/Cm ²), 0-7 (kg/Cm ²)	Physically / Visually		
Vacuum Pump	Make	Bharat vacuum pump	Physically / Visually		



System Components	Design Specification		Method of Verification	Actual Observation	Checked By Sign/Date
	Capacity	150 LPM	Physically / Visually		
	Sr. No.	21806299	Physically / Visually		
	Type	MDERAXX071-22	Physically / Visually		
Vacuum pump	Make	Lenze	Physically / Visually		
motor	Sr. No	14010093	Physically / Visually		
	Capacity	0.5 HP/0.37 KW	Physically / Visually		
Eye mark	Туре	TLu-011	Physically / Visually		
sensor	Make	Data logic	Physically / Visually		
	Туре	8.5000.B152.0360	Physically / Visually		
Encoder	Sr. No.	91430800244	Physically / Visually		
	Make	Kubler	Physically / Visually		
Front door safety limit switch	Make	Kaycee	Physically / Visually		
Lid foil Splice	Make	P & F	Physically / Visually		
sensor	Туре	DK-12-11/124/136	Physically / Visually		
Base foil Splice	Make	P & F	Physically / Visually		
sensor	Туре	DK-12-11/124/136	Physically / Visually		
G. P.	Туре	E5CWL-R1P	Physically / Visually		
Cooling water temperature controller	Range	4°C to 30°C	Physically / Visually		
controller	Make	Omron	Physically / Visually		
Pneumatic	Туре	IPS-100	Physically / Visually		
Pressure Switch	Range	0 TO 7 BAR	Physically / Visually		



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System Components	Design Specification		Method of Verification	Actual Observation	Checked By Sign/Date
	Make	INDFOS	Physically / Visually		
*Camera	Make	Jekson Vision	Physically /		
System			Visually		
*Pin Hole Detector	Make	Jekson Vision	Physically / Visually		

Remark:		 	 	
Reviewed	l by (Sign/Date)			



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VERIFICATION OF MATERIAL OF CONSTRUCTION: Should be verified by test certificates of respective material apart from that SS material should be verified by molybdenum kit in absence of test certificate.

Name of Components	Material of Construction	Method of Verification	Observation	Checked By Sign/Date
Hopper with lid	SS 316	Molybdenum Kit		
Bowl dish / Vibrator	SS 316	Molybdenum Kit		
Feeding channel	Aluminum alloy (self anodized)	Physically		
* Test certificate to be	verify and attached to	protocol.		

Remark:	 	
Reviewed by (Sign/Date)		

5.6 IDENTIFICATION OF SUPPORTING UTILITIES:

Utility	Method of verification	Observation	Checked by Sign/ Date
Electricity: 3 phase, 415V AC,	Physically and		
50Hz supply with neutral and	with clamp meter		
proper earthing.			
Chilled water: 2 lit / min. at 14 ⁰ C to 16 °C.	Physically		
Compressed air: Minimum pressure 6 Kg/Cm ²	Physically		

Remark:	 	 	 	

Reviewed by (Sign/Date)



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5.7 IDENTIFICATION OF SAFETY FEATURES: Identify and record the safety features (if any) and their function in following tables:

Safety Features	Function	Method Of	Observation	Checked By
Description		Verification		Sign/ Date
Earthing	To avoid electrical shocks due to leakage current.	Physically		
Emergency stop button	To stop machine immediately in case of emergency	Physically		
Micro switch for PVC film	Machine will not operate if PVC roll is finished.	Physically		
Limit switch	If door open during operation the machine should be stop.	Physically		

1	the machine shoul	d be stop.			
Remark:					
Reviewed by (Sig	gn/Date)				
5.8 IDENTIFI	ICATION OF CO	OMPONENT (S	S) TO BE CALI	BRATED	
Name of Compo	nents Range	Make	ID	Location	Identified By Sign/Date
Remark:					



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5.9 IDENTIFICATION OF STANDARD OPERATING PROCEDURE (SOP)

The following Standard Operating Procedures were identified as important for effective performance of Blister pack machine.

S.No.	SOP TITLE	IDENTIFIED BY(Sing/ Date)
Remark	:	
Reviewe	d by (Sign/Date)	



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5.10 VERIFICATION OF DRAWING AND DOCUMENTS:

Following documents are reviewed and attached as listed below:

S.No.	DRAWING AND DOCUMENT DETAIL	CHECKED BY (SIGN)	DATE			
Remark:						
	wed by (Sign/Date)					



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5.11 LIST OF ANNEXURES:

Annexure No.	Document Title
Remarks (if any):	
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	·
Done By & Date:	Verified By & Date:



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5.12	DEFICIENCY AND CORRECTIVE ACTION (S) REPORT (S):
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Following deficiency was verified and corrective actions taken in consultation with the Engineering Department.
Description of deficiency:
Corrective action(s) taken:

Deviation accepted by (Sign/Date)

Deviation Approved by (Sign/Date)



PROTOCOL No.:

5.13 ABBREVIATION(S)

PLC: Programmable Logic Controller

MMI: Man Machine Interface

SMPS: Single Mode Power Supply

PRC: Printing Registration Control

PSR: Printing Register Scanner

VFD: Variable Frequency Drive

SOP: Standard Operating Procedure



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6.0	INSTALLATION QUALIFICATION FINAL REPORT:
6.1	SUMMARY:

6.2 CONCLUSION:

Prepared By Sign/ Date

Checked By Sign/ Date



PROTOCOL No.:

6.3 FINAL REPORT APPROVAL

It has been verified that all tests required by this protocol are completed, reconciled and attached to this protocol or included in the qualification summary report. Verified that all amendments and discrepancies are documented, approved and attached to this protocol. If applicable signature in the block below indicates that all items in this qualification report of Blister pack machine have been reviewed and found to be acceptable and that all variations or discrepancies have been satisfactorily resolved.

FUNCTION	NAME	DESIGNATION	DEPARTMENT	SIGNATURE	DATE
			QUALITY ASSURANCE		
REVIEWED BY			ENGINEERING		
			PRODUCTION		
APPROVED			HEAD OPERATION		
ВҮ			QUALITY ASSURANCE		