Astute Machinery Consultants

Provision and Use of Work Equipment Regulations Assessment Report

for the

Rayovac Site Wide PUWER

312 Multiline

on behalf of

Ross Bradley | Rayovac Energizer | Washington

Proposal Number: 26067

Date: 03 Jun 2026

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Client:

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AMC Consultant:

Alastair Laurenson

Date of Assessment:

07 Sept 2026

Revision History:

Initial Draft:	Alastair Laurenson	**Date:**	08 Sept 2026
Reviewed By:	Jim Davis	**Date:**	01 Oct 2026
Issued to Customer:	Alastair Laurenson	**Date:**	03 Oct 2026

Project Details:

Project Name:	Rayovac Site Wide PUWER

Machine Details:

Machine Name:	312 Multiline
Equipment Type:	Battery Assembly Machine
Manufacturer:	SP Technology
Year of Manufacture:	2017
Asset ID:	WAC-573. WAC-342. WAC-77 WAC-554. WAC-91. WAC-67 WAC-417. WAC-76 WAC-357. WAC-66
Serial Number:	ARF.01
Area:	Cell Assembly
Location:	Ground Floor
Supply Voltage:	415Vac
Control Voltage:	24V DC
Pneumatic Pressure:	6 Bar

Machine Basic Description:

A Multiline in battery production is a fully integrated, multi-station manufacturing line used to assemble battery cells or battery components in a continuous, automated flow. It’s essentially a complete production line packaged as one system, combining several critical process steps into a single coordinated machine.

Machine Certification:

The machine displays a CE Mark.

Scope of the Regulations:

The Provision and Use of Work Equipment Regulations 1998 came into force on 5th December 1998.

In these regulations, the term the '1974 act' refers to the UK Health and Safety at Work Act 1974.

The regulations apply to employers, persons having control of work equipment, persons who supervise and manage work equipment, and the self-employed in respect of the equipment they use at work.

All work equipment used by employees at work falls within the scope of "work equipment". For the purposes of this assessment "work equipment" is generally taken to mean machinery or combinations of machinery (complex assemblies / production lines).

Definitions:

New Work Equipment: Items of work equipment first provided for use from 5th December 1998 will need to meet the requirements of PUWER 98.

Second Hand Work Equipment: When existing work equipment is sold by one company to another, and it is brought into use by the purchasing company from 5th December 1998 it becomes new work equipment and must also meet the requirements of PUWER 98.

Work Equipment: Any machine, apparatus, tool, or installation used at work.

Use of Work Equipment: Any activity involving work equipment such as starting or stopping the equipment, its use, transport, repair, modification, maintenance, and servicing, and cleaning.

Danger Zone: Any zone within and/or around work equipment in which an exposed worker is subject to a risk to his health or safety.

Exposed Worker: Any worker wholly or partially in a danger zone.

Operator: The worker or workers given the task of using work equipment.

General:

Regulations 3 – 9

Place defined responsibilities on management to complement the requirements which are covered under the Health and Safety at Work Act 1974 and The Management of Health and Safety at Work Regulations 1999.

These regulations require site policies and procedures to be formulated and implemented to ensure that work equipment is safe for use and adequate measures are in place to ascertain the health and safety of employees whilst at work to the requirements of PUWER 98.

Regulation 4 requires employers to ensure that:

- The work equipment is suitable for the intended use.
- They assess the risk to the health and safety of the persons using the work equipment.
- Consider the working conditions in the premises and any additional risk posed using that equipment.

Regulation 5 requires employers to ensure that:

- That the work equipment is maintained in an efficient state, in efficient working order, and in good repair.
- Where the machinery has a maintenance log, they must ensure that it is kept up to date.

Regulation 6 requires the employer:

To ensure that where the safety of work equipment depends on the installation conditions, to ensure that it has been installed correctly and is safe to operate the work equipment is inspected:

- After installation and before being put into service for the first time.
- After assembly at a new site or in a new location.

The employer must also ensure that work equipment exposed to conditions causing deterioration which is liable to result in dangerous situations, and to ensure that the health and safety conditions are maintained, and that any deterioration can be detected and remedied in good time is inspected at:

- Suitable intervals and:
- Each time that exceptional circumstances which are liable to jeopardise the safety of the work equipment have occurred.
- Any such inspection must be carried out before any equipment leaves the premises or undertaking.
- If the equipment is obtained from another source or supplier, it must not be used unless accompanied by physical evidence from the source or supplier that the last inspection required has been carried out.

Regulation 7 requires that the employer:

Must ensure that where the use of work equipment is likely to involve a specific risk to health and safety that:

- The use of the equipment is restricted to those persons suitably trained to use the equipment and specifically given the task of using it.
- Repairs, modifications maintenance or servicing is restricted to persons specifically designated to perform these tasks, and that they have received adequate training to carry out the tasks.

Regulation 8 requires that the employer and his supervisors and managers of work equipment:

Must ensure that all persons who use work equipment have available to them adequate health and safety information and where appropriate, written instructions to the work equipment that are comprehensible to all those concerned. The information where appropriate shall include:

- The conditions in which and the methods by which the work equipment may be used.
- Foreseeable abnormal situations and the action to be taken if such a situation were to occur.
- Information from any conclusions to be drawn from experience of using the work equipment.

Regulation 9 requires that the employer:

Shall ensure that his supervisors and managers of work equipment, and all persons who use the work equipment have received:

- Adequate training for purposes of health and safety, including methods to be adopted when using the work equipment.
- Any information as to the risks which the use of the equipment may entail.
- All precautions to be taken when using the equipment.

Regulations 10 – 24.

Regulation 10 covers the initial integrity of machines (in most cases), and requires that the employer:

- Must ensure that an item of work equipment conforms at all times with any 'essential safety requirements', other than requirements which at the time of it being first supplied or put into service in any place which these regulations do not apply.

Regulations 11 – 24 cover the specific essential compliance requirements of machinery in the workplace.

Summation:

The regulations 3 to 24 can be summarised as follows:

Management Implemented Health and Safety Policies and Defined Procedures:

Regulation 3	Application
Regulation 4	Suitability of Work Equipment
Regulation 5	Maintenance
Regulation 6	Inspection
Regulation 7	Specific Risks
Regulation 8	Information and Instructions
Regulation 9	Training

Essential Safety Requirements of Machinery:

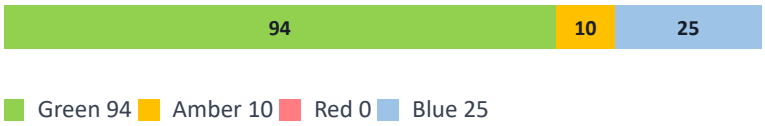
Regulation 10	Conformity with Community Requirements
Regulation 11	Dangerous Parts of Machinery
Regulation 12	Protection against Specific Hazards
Regulation 13	High or Very Low Temperature
Regulation 14	Controls for Starting or Making a Significant Change in Operating Conditions
Regulation 15	Stop Controls
Regulation 16	Emergency Stop Controls
Regulation 17	Controls
Regulation 18	Control Systems
Regulation 19	Isolation from Sources of Energy
Regulation 20	Stability
Regulation 21	Lighting
Regulation 22	Maintenance Operations
Regulation 23	Markings
Regulation 24	Warnings

The following checklist assesses the compliance of the work equipment under inspection to the requirements of Regulations 1–24 in accordance with the inspection requirements of Regulation 6.

SUPPLY VOLTAGE 415Vac	**CONTROL VOLTAGE** 24V DC	**PNEUMATIC PRESSURE** 6 Bar
MANUFACTURER SP Technology	**YEAR OF MANUFACTURE** 2017	

In Compliance (Green)	Non-Compliant (Red)	Action Required (Amber)	For Consideration (Blue)	Overall Compliance %
94	**0**	**10**	**25**	**90.4%**

STATUS BREAKDOWN



Green 94 Amber 10 Red 0 Blue 25

PER-REGULATION BREAKDOWN

General	Yes	No	N/A
1. Is there a current health and safety policy for the site?	✓		
Comments:			

General	Yes	No	N/A
2. Is there a responsible person for the health and safety policy?	✓		
Comments: ***Green:*** *The site responsible person is Myles Atkins.*			

Regulation 1: Citation and Use	Yes	No	N/A
3. Has the work equipment been brought into use by the company or owner / operator after 5th December 1998?	✓		
Comments:			

Regulation 2: Interpretation and Scope	Yes	No	N/A
4. Does the equipment come under the interpretation of work equipment as defined by PUWER 98?	✓		
Comments:			

Regulation 3: Application	Yes	No	N/A
5. Is the equipment specified in the PUWER 98 Regulations Section 3?	✓		
Comments:			

Regulation 4: Suitability of the Equipment	Yes	No	N/A
6. Is the equipment suitable by design, construction, or adaptation for the work it is provided to do in accordance with the manufacturer's specifications and instructions?	✓		
Comments:			
7. Have risk assessments been carried out on all work equipment?	✓		
Comments: ***Amber:*** *This was noted as work in progress*			
8. Is the equipment ergonomically well designed, positioned and located to reduce risks to the end user or operator of the equipment?	✓		
Comments:			
9. Have all ventilation requirements been considered and appropriate measures taken?	✓		
Comments:			
10. Have and are noise surveys assessments carried out?	✓		
Comments:			
11. Have and are lighting surveys / assessments carried out?	✓		
Comments:			

Regulation 4: Suitability of the Equipment	Yes	No	N/A
12. Are the confined space regulations applicable, and if so, have they been addressed, and the working procedures adequately documented?			✓
Comments:			
13. Are there any risks to personnel due to lone working, and if so, have they been addressed and working procedures adequately documented?			✓
Comments:			
14. Has the control of substances hazardous to health regulations (COSHH) been addressed correctly and are all necessary controls in place?	✓		
Comments:			
15. Are the COSHH assessments readily available to all persons concerned?	✓		
Comments:			
16. Where required under the COSHH assessments, is personal protective equipment (PPE) issued to the relevant personnel and is this adequately controlled?	✓		
Comments:			

Regulation 5: Maintenance	Yes	No	N/A
17. Has a formal maintenance system been implemented, either planned preventative or condition based for safety critical parts of work equipment?	✓		
Comments:			
18. Is the work equipment maintained in efficient working order and good repair?	✓		
Comments:			
19. Is there an authorised persons list stating who is competent to perform maintenance operations?	✓		
Comments: ***Amber:*** *This was noted as work in progress*			
20. Have all maintenance personnel received adequate training on health and safety and the safe use of work equipment?	✓		
Comments: ***Amber:*** *This was noted as work in progress*			

Regulation 6: Inspection	Yes	No	N/A
21. Are safety critical parts frequently checked and inspected for correct function?	✓		
Comments:			

Regulation 6: Inspection	Yes	No	N/A
22. Are work equipment safety inspection documents available, or is this the first inspection of the equipment?	✓		
Comments:			
23. Is the preventative maintenance log up to date?	✓		
Comments:			

Regulation 7: Specific Risks	Yes	No	N/A
24. Is use of the equipment restricted to those given the task of using it and trained to use it?	✓		
Comments:			
25. Are there safe working procedures in place for maintenance operations?	✓		
Comments:			
26. Is there adequate control over maintenance personnel moving from different departments or areas to ensure they are trained to maintain the work equipment in the other departments or areas?	✓		
Comments:			
27. Is there a permit to work system in place and are the working procedures adequately documented?	✓		
Comments:			
28. Is there a lock out / tag out policy and procedure and matrix in place for the safe isolation of work equipment from all hazardous energy sources?	✓		
Comments:			

Regulation 8: Information and Instructions	Yes	No	N/A
29. Are instruction manuals available for all work equipment where required?	✓		
Comments:			
30. Are there safe working procedures in place for use of the equipment where required?	✓		
Comments:			
31. Are written instructions on the safe use of work equipment available and are they understandable to the persons concerned?	✓		
Comments:			

Regulation 8: Information and Instructions	Yes	No	N/A
32. Are regular meetings held with employee's and / or employee representatives about any matters regarding Health and Safety?	✓		
Comments:			

Regulation 9: Training	Yes	No	N/A
33. Have operators received adequate training on health and safety and the safe use of work equipment?	✓		
Comments:			
34. Have supervisors received adequate training on health and safety and the safe use of work equipment?	✓		
Comments:			
35. Is there an authorised persons list as to who is competent to use the work equipment?	✓		
Comments:			
36. Is there adequate control over operators / personnel moving from different departments or areas to ensure they are trained to operate the work equipment in the other departments or areas?	✓		
Comments:			
37. Are there adequate controls in place for the prevention of young people (under the age of 18) being exposed to unnecessary risks?			✓
Comments:			
38. Are training records kept, and do they show the requirements for update and review and the person(s) responsible for training?	✓		
Comments:			
39. Is there adequate inductions and / or training for all employees including contractors, temporary employees / casual or agency workers, and visitors?	✓		
Comments:			

Regulation 10: Conformity with UK and EU Requirements	Yes	No	N/A
40. Was the machine first put into service after December 31st 1992?	✓		
Comments:			
41. Was the machine, regardless of age, placed for use in the EC after December 31st 1992?	✓		
Comments:			

Regulation 10: Conformity with UK and EU Requirements	Yes	No	N/A
42. Is the equipment UKCA or CE marked? *UKCA not applicable before 1st January 2022 and is optional from the 1st of August 2023. CE not applicable before 1st January 1993, mandatory after 1st January 1995; and mandatory for equipment first provided in the workplace after 5th December 1998 for PUWER 98.*	✓		
Comments:			
43. Is there a UKCA or CE Declaration of Conformity? *UKCA not applicable before 1st January 2022, and mandatory for equipment first provided in the workplace after 1st January 2023. CE not applicable before 1st January 1993, mandatory after 1st January 1995; and mandatory for equipment first provided in the workplace after 5th December 1998 for PUWER 98.*	✓		
Comments:			

Regulation 11: Dangerous Parts of Machinery - Guards and Interlocks	Yes	No	N/A
44. Are measures taken to prevent access to danger zones?		✓	
Comments: ***Amber:*** *There are nip/crush points at the film unwinders.* ***Amber:*** *Lower conveyors exposed shafts.*			
45. Can the machine be stopped before a danger zone can be accessed?	✓		
Comments:			
46. Are fixed guards used?	✓		
Comments:			
47. Are other guards or physical safety related control system protection devices used?	✓		
Comments:			
48. If fixed guards or other guards and protection devices are not used, are “push sticks”, jigs, holders or other devices used to reduce risk?			✓
Comments:			
49. Are the guards, protection devices and other devices provided suitable for the purpose intended?	✓		
Comments:			
50. Are the guards of good construction, sound material, and adequate strength?	✓		
Comments:			
51. Are the guards maintained in an efficient state, efficient working order, and in good repair?		✓	
Comments: ***Amber:*** *Guarding near the outfeed has loose fixings.*			

Regulation 11: Dangerous Parts of Machinery - Guards and Interlocks	Yes	No	N/A
52. Do the guards themselves create any additional risk to health and safety?		✓	
Comments:			
53. Is it possible to easily bypass or disable the guards?	✓		
Comments: ***Amber:*** *It is possible to reach into to the tray elevators.* ***Amber:*** *A slot is present in the guarding that could be used to gain access.*			
54. Are the guards secured with appropriate fixings in accordance with the requirements of the Machinery Directive 2006/42/EC and EN 14120?	✓		
Comments:			
55. Are the guards situated at a sufficient distance from the danger zone?		✓	
Comments: ***Amber:*** *It is possible to reach into to the tray elevators.* ***Amber:*** *A slot is present in the guarding that could be used to gain access.*			
56. Is it possible to view of the operating cycle of the machinery where guards are in place where such a view is necessary?	✓		
Comments:			
57. Do the guards allow operations necessary to fit and replace parts and for maintenance work, and in doing so do they restrict access so that it only allows access to the work area where possible without dismantling the guard or protective device?	✓		
Comments:			
58. Are appropriate measures adopted to stop people being trapped in the machine?			✓
Comments:			
59. Where fitted are interlocks positive acting?	✓		
Comments:			
60. Where fitted are interlocks correctly positioned for use, and both secured and located in such a way to actively prevent defeat?		✓	
Comments: ***Amber:*** *Interlocks were missing fixings and of the Hex type.*			
61. Where fitted do the interlocks function correctly?	✓		
Comments:			
62. Where fitted are all safety related control system actuators, input devices or electronic sensitive devices adequate for their purpose, and are they of the correct type?	✓		
Comments:			

Regulation 12: Protection Against Specified Hazards	Yes	No	N/A
63. Is there protection provided against any article or substance falling or being ejected from work equipment?	✓		
Comments:			
64. Is there protection provided against rupture or disintegration of parts of the work equipment?	✓		
Comments:			
65. Is there protection provided against work equipment catching fire or overheating?	✓		
Comments:			
66. Is there protection provided against the unintended or premature explosion of the work equipment or any article or substance produced, used, or stored in it?	✓		
Comments:			
67. Is there protection provided against the unintended or premature discharge of any article, gas, dust, liquid, vapour, radiation, or other substance which is produced, used, or stored in the work equipment that is hazardous to health?	✓		
Comments:			
68. Where the protection provided does not fully protect the operator, is personal protective equipment (PPE) issued to the relevant personnel and is this adequately controlled?	✓		
Comments:			

Regulation 13: Very High or Very Low Temperatures	Yes	No	N/A
69. Are all touchable hot or cold surfaces adequately guarded?			✓
Comments:			
70. Where there is the possibility of hot or cold materials or substances being ejected, have adequate measures been applied to minimise the risk?			✓
Comments:			

Regulation 14: Controls for Starting or Making a Change in Operation	Yes	No	N/A
71. Is there a start control provided to start the work equipment (including restarting after a stoppage for any reason)?	✓		
Comments:			
72. Are controls provided to make a significant change in the operating conditions (speed, pressure, etc.) where after the change it results in a greater risk to health and safety?	✓		
Comments:			

Regulation 15: Stop Controls	Yes	No	N/A
73. Is the work equipment fitted with one or more readily accessible stop controls to bring it to a stop in a safe condition and in a safe manner?	✓		
Comments:			
74. When the hazardous parts of the work equipment have stopped, is the energy supply to the actuators concerned switched off where necessary?	✓		
Comments:			
75. Does the stop control have priority over the start control or any control that changes the operating conditions of the work equipment?	✓		
Comments:			

Regulation 16: Emergency Stop Controls	Yes	No	N/A
76. Is the work equipment fitted with one or more emergency stop controls where required?	✓		
Comments:			
77. Does the emergency stop control have priority over any other all other controls including the normal stop control?		✓	
Comments: ***Amber:*** *AMC were unable to test this during the inspection.*			

Regulation 17: Controls - General	Yes	No	N/A
78. Are all control devices clearly visible, identifiable, and appropriately marked by durable means for the environment in which they are located?	✓		
Comments:			
79. Are all control devices located outside danger zones excepting certain controls that are required within the danger zones i.e., robot teach pendants?	✓		
Comments:			
80. Where controls are required in danger zones are they only reduced speed, hold to run, or enabling devices, or are other safeguards in place?	✓		
Comments:			
81. From the main control position, is the operator able to ensure that no person is present in the danger zone?	✓		
Comments:			
82. If it is possible that a person could be in a danger zone, is an audible, visible, or suitable warning given in accordance with regulation 24 whenever the machinery is about to start?	✓		
Comments:			

Regulation 17: Controls - General	Yes	No	N/A
83. Where a person can be in the danger zone is there a means to prevent starting of the work equipment and / or a means of warning the operator of their presence?	✓		
Comments:			

Regulation 18: Controls Systems	Yes	No	N/A
84. Are the control systems safe?	✓		
Comments:			
85. Are control systems chosen making due allowance for failures, faults and constraints that can be expected to occur in the planned use of the work equipment?	✓		
Comments:			
86. Does the control systems operation minimise any risk to health and safety?	✓		
Comments:			
87. Does the control system ensure that when faults or damage to any part of the control system, or a loss of supply of any form of energy does not lead to an increased risk to health and safety - as far as reasonably practicable, are they fail safe?	✓		
Comments:			

Regulation 19: Isolation from Hazardous Sources of Energy	Yes	No	N/A
88. Is it possible to isolate the work equipment from all its energy sources?	✓		
Comments:			
89. Are the means to isolate energy sources clearly identified by durable means and readily accessible (i.e., located between 0.6 and 1.9m above the service / floor level)?	✓		
Comments:			
90. Are all energy isolation devices lockable and are they capable of being locked off and tagged off?	✓		
Comments:			
91. When energy sources are reconnected, are risks to health and safety prevented?	✓		
Comments:			

Regulation 20: Stability	Yes	No	N/A
92. Is the work equipment stable or is it provided with facilities to make it stable?	✓		
Comments:			

Regulation 20: Stability	Yes	No	N/A
93. Are removable /moveable parts of the work equipment stable, or can they be made stable by clamping or otherwise?	✓		
Comments:			
94. If the work equipment is fitted with lifting equipment is it marked with its WLL (SWL), is it secure and stable, and is it inspected under LOLER?	✓		
Comments:			

Regulation 21: Lighting	Yes	No	N/A
95. Is the lighting provided suitable for normal operation of the equipment?	✓		
Comments:			
96. Is the lighting provided suitable for setting and adjustment of the equipment?	✓		
Comments:			

Regulation 22: Maintenance Operations	Yes	No	N/A
97. Is it possible to shut down the work equipment completely to carry out maintenance operations?	✓		
Comments:			
98. If this is not possible, is it possible for such operations to be carried out, outside of the danger zones?	✓		
Comments:			
99. If this is not possible, is it possible to take appropriate protection measures?	✓		
Comments:			

Regulation 23: Markings and Signage	Yes	No	N/A
100. Does the work equipment bear the essential warnings and markings where appropriate for stop / start and all other controls and isolators?	✓		
Comments:			
101. Very high and / or very low temperatures and surfaces?	✓		
Comments:			
102. Maximum speed?	✓		
Comments:			
103. Direction of Rotation?	✓		
Comments:			

Regulation 23: Markings and Signage	Yes	No	N/A
104. Correct gas, fluid, or substances and direction of flow identification?	✓		
Comments:			
105. Any other relevant markings to prevent mechanical injury such as crushing, entanglement or cutting and severing hazards etc?	✓		
Comments:			
106. Any other relevant markings to ensure health and safety such as pressure, radiation, explosive atmospheres or substances or strong magnetic fields etc?	✓		
Comments:			

Regulation 24: Hazard Warnings and Signage	Yes	No	N/A
107. Are all appropriate warning signs and warning devices installed or fitted to the equipment where necessary?	✓		
Comments:			

Regulations 25 to 30 Mobile and Self-Propelled Work Equipment	Yes	No	N/A
108. Is the equipment designed to only carry the driver or person operating the equipment?			✓
Comments:			
109. Are any other persons expected to be carried?			✓
Comments:			
110. Are there signs on the mobile equipment stating the maximum capacity for carrying people?			✓
Comments:			
111. Are all unauthorised persons prevented from operating the equipment?			✓
Comments:			
112. Are adequate collision prevention devices fitted?			✓
Comments:			
113. Are suitable stop devices fitted to the equipment?			✓
Comments:			
114. For self-propelled equipment are there independent back up braking systems available in the event of failure?			✓
Comments:			

Regulations 25 to 30 Mobile and Self-Propelled Work Equipment	Yes	No	N/A
115. For remote controlled equipment are there automatic braking systems fitted to stop the equipment if it goes out of range of the transmitter or in case of the failure of the remote connection or general failure of the equipment?			✓
Comments:			
116. Does the equipment have adequate and active speed restriction devices?			✓
Comments:			
117. Is driver or operator visibility in front and behind the vehicle adequate at all times and are mirrors or sensors fitted to minimise blind spots?			✓
Comments:			
118. For remote controlled mobile equipment is used is there sufficient audible and visual warning devices in place for others close by the machine?			✓
Comments:			
119. Is the equipment stable under normal use conditions i.e., whilst moving, or when stationary for task completion purposes when used in accordance with the manufacturers operating instructions?			✓
Comments:			
120. Is the driver, operator or any passenger protected from falling off the moving equipment, are restraining systems fitted, and are policies and procedures such as SOP's and SSOW's in place to ensure that restraining devices are used?			✓
Comments:			
121. Are there adequate Roll Over Protection Structures (ROPS) Falling Object Protection Structures (FOPS) and Tip Over Protection Structures (TOPS) fitted to the equipment to prevent injury to the driver, operator, or any passenger?			✓
Comments:			
122. Does the driver, operator or any passenger have suitable protection from the moving or rotating parts, or drive shafts fitted to the equipment?			✓
Comments:			
123. Are drive shafts prevented from contacting the floor in both normal operation and failure scenarios?			✓
Comments:			
124. Is suitable firefighting equipment carried if required?			✓
Comments:			

Supplementary / Complimentary Questions	Yes	No	N/A
125. Are there any electrical safety or compliance issues with the equipment with respect to IEC EN 60204-1?		✓	
Comments:			
126. Are there any pneumatic safety or compliance issues with the equipment with respect to ISO EN 4414?		✓	
Comments:			
127. Are there any hydraulic safety or compliance issues with the equipment with respect to ISO EN 4413?			✓
Comments:			
128. Are there any safety or compliance issues with the equipment's safety related control system(s) with respect to ISO EN 13849?		✓	
Comments:			
129. Are there any other notable issues that are not covered within the scope of PUWER?	✓		
Comments: ***Amber:*** *Erogonmics of loading mterials.*			

Conclusion & Findings

13 issues flagged — **0 Red** · **13 Amber** · documented in **9** hazards

Hazards Identified — Findings & Recommendations

HAZARD 1 · FILM UNWINDER CRUSH POINT. · ACTION REQUIRED (AMBER)

LINKED ISSUES

- **Q44** — Regulation 11: Dangerous Parts of Machinery - Guards and Interlocks
  There are nip/crush points at the film unwinders.

Hazard / Finding:

The machine has a pair of film unwinder stations, each of which moves approximately 10mm to 20mm in the horizontal plane. This movement creates crush and nip points around the perimeter of the unwinding stations, between the moving station and adjacent fixed structure. A person's fingers or hand placed at these points during operation, film loading or adjustment could be crushed or trapped as the station moves, resulting in injury.

Recommended Remedial Action:

Access to the crush and nip points created by the movement of the unwinder stations must be prevented. The preferred approach is to design out the trap by ensuring that any gap between the moving station and the adjacent fixed structure is either large enough that a body part cannot be crushed or small enough that a body part cannot enter, thereby removing the crushing hazard around the perimeter. Where the trap cannot be designed out, fixed guarding should be provided to prevent access to the moving edges; where access is required for film loading or adjustment, an interlocked guard or other suitable protective device should be fitted so that the station cannot move while access to the trap points is possible and is stopped if the guard is opened. Any residual movement should be accounted for so that the hazardous motion cannot occur unexpectedly once access is gained. Where a foreseeable trap point necessarily remains, it should be clearly identified with suitable warning markings, and the adequacy and condition of the safeguards included within the machine's routine inspection and maintenance regime.

Standards Referenced	
EN ISO 13857	Safety distances to prevent hazard zones being reached by upper and lower limbs
EN ISO 14120	Guards — General requirements for the design and construction of fixed and movable guards

HAZARD 2 · TRAY ELEVATORS. · ACTION REQUIRED (AMBER)

LINKED ISSUES

- **Q53** — Regulation 11: Dangerous Parts of Machinery - Guards and Interlocks
  It is possible to reach into to the tray elevators.
- **Q55** — Regulation 11: Dangerous Parts of Machinery - Guards and Interlocks
  It is possible to reach into to the tray elevators.

Hazard / Finding:

The machine is equipped with elevator stations that lower trays onto the return conveyor situated below. There is the possibility of a person reaching into the machine as the elevator lowers, creating an entanglement and crushing hazard between the descending elevator, the trays and the surrounding structure or conveyor. Contact with these moving parts during operation, or when reaching in to clear a tray or blockage, could result in serious injury.

Recommended Remedial Action:

Access to the moving elevator stations and the associated trap and entanglement points must be prevented while the machine is in operation. The preferred approach is to guard the area so that a person cannot reach into the machine as the elevator lowers — for example by fitting fixed guarding around the elevator and lower conveyor, with any openings sized and positioned so that a hand or arm cannot reach the hazardous parts. Where routine access is required to load or clear trays, an interlocked guard or other suitable protective device should be provided so that the elevator and associated conveyor cannot operate while access is possible and are stopped if the device is actuated. The infeed and discharge openings should be arranged so that product can pass while access to the moving parts is prevented, applying an adequate reach distance to any opening that remains. Any residual movement or stored energy should be accounted for so that hazardous motion cannot occur unexpectedly once access is gained, and the adequacy and condition of the safeguards should be included within the machine's routine inspection and maintenance regime.

Standards Referenced	
EN ISO 13857	Safety distances to prevent hazard zones being reached by upper and lower limbs
EN ISO 14120	Guards — General requirements for the design and construction of fixed and movable guards

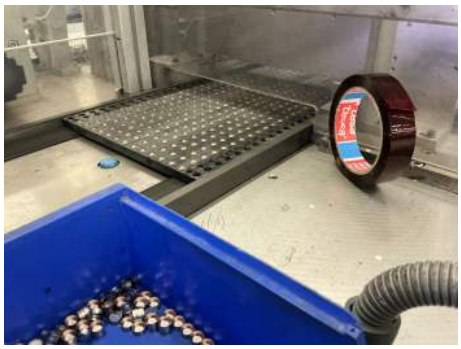
HAZARD 3 · SLOTS ON GUARDING. · ACTION REQUIRED (AMBER)

LINKED ISSUES

- **Q53** — Regulation 11: Dangerous Parts of Machinery - Guards and Interlocks
  A slot is present in the guarding that could be used to gain access.
- **Q55** — Regulation 11: Dangerous Parts of Machinery - Guards and Interlocks
  A slot is present in the guarding that could be used to gain access.

Hazard / Finding:

Slots were found in the guarding measuring more than 20mm x 65mm. Openings of this size permit a limb to be inserted through the guard, and the hazard behind them is not set back by the safety distance of at least 850mm that an opening of this size requires. As a result, a person could reach through the guarding and make contact with the hazard, exposing them to the moving parts within and risking serious injury.



Recommended Remedial Action:

The reach hazard created by these openings must be removed by reducing the size of the slot openings so that access to the hazard is prevented, or so that only a much smaller safety distance is required. This should be achieved by fitting a suitable infill or additional panel that reduces the aperture dimensions to a point where a limb can no longer be inserted far enough to reach any hazardous part. The chosen measure must ensure that a limb inserted through any remaining opening cannot make contact with a hazardous part, and the revised opening sizes and their corresponding safety distances should be verified once the modifications are complete and recorded within the machine's inspection records.

Standards Referenced	
EN ISO 13857	Safety distances to prevent hazard zones being reached by upper and lower limbs
EN ISO 14120	Guards — General requirements for the design and construction of fixed and movable guards

HAZARD 4 · INTERLOCK FIXINGS. · ACTION REQUIRED (AMBER)

LINKED ISSUES

- **Q60** — Regulation 11: Dangerous Parts of Machinery - Guards and Interlocks
  Interlocks were missing fixings and of the Hex type.

Hazard / Finding:

The guard interlocks were found to have missing fixings, and the fixings fitted are of the hex type. With fixings missing, the interlock devices and their actuators are not securely mounted, which can lead to misalignment, unreliable operation or displacement, such that the interlock may not perform its safety function correctly. As the fixings are of the hex type, and hex tools of the kind used for machine setting are commonly available, the interlocks could also be removed or adjusted with a readily available tool, allowing the interlock to be defeated and the guard opened with the machine still able to operate.

Recommended Remedial Action:

The interlock devices and their actuators must be securely mounted with their full complement of correct fixings so that they remain in correct alignment and cannot be displaced through normal operation or vibration. The missing fixings should be replaced, and the hex-type fixings changed to a form that cannot be released by commonly available tools, with the device and actuator fixed by non-detachable means such as one-way screws, riveting or pinning so they cannot be removed with standard tools. The mounting should ensure the actuator cannot be operated while the guard is open. The security, mounting and coding of the interlock devices, together with any evidence of tampering or defeat, should be confirmed by a competent person and included within the machine's routine inspection regime.

Standards Referenced	
EN ISO 14119	Interlocking devices associated with guards — Principles for design and selection

HAZARD 5 · GUARD FIXINGS LOOSE. · ACTION REQUIRED (AMBER)

LINKED ISSUES

- **Q51** — Regulation 11: Dangerous Parts of Machinery - Guards and Interlocks
  Guarding near the outfeed has loose fixings.

Hazard / Finding:

The guard fixings on the outfeed of the machine were found to be loose. It is not known whether hazards are present behind these guards; however, the fixings are of a security-style design, which indicates the guards are intended as fixed guards retaining a hazard that should not be routinely accessed. With the fixings loose, the guards are not securely retained and could be displaced or removed with little effort, potentially exposing personnel to whatever hazardous parts lie behind them.

Recommended Remedial Action:

The outfeed guards must be secured with their full complement of correct security-style fixings so that they are reliably retained and cannot be displaced through normal operation or vibration, maintaining the intended requirement for a tool to remove them. The loose fixings should be tightened or replaced as necessary with the correct type. The area behind these guards should be assessed by a competent person to confirm what hazards, if any, are present, so that the adequacy of the guarding can be verified and the correct level of safeguarding provided. Once secured, the guards should be confirmed as complete and correctly seated, and the presence and condition of the guard fixings included as a defined item within the machine's routine inspection and maintenance regime.

Standards Referenced	
EN ISO 14120	Guards — General requirements for the design and construction of fixed and movable guards

HAZARD 6 · LOADING/UNLOADING OF MATERIALS. · ACTION REQUIRED (AMBER)

LINKED ISSUES

- **Q129** — Supplementary / Complimentary Questions
  Erogonmics of loading mterials.

Hazard / Finding:

The machine requires a number of components and materials to be loaded at height, and AMC observed operators using mobile steps and similar equipment to carry out this task. This presents an ergonomic issue for operators, who must load at heights and reaches that are not well suited to the task, and the use of portable access equipment while handling materials also introduces a risk of overreaching, loss of balance, and falls from height.

Recommended Remedial Action:

The arrangements for loading components and materials at height should be assessed and improved so that the task can be carried out safely and without undue ergonomic strain. Wherever reasonably practicable, the need to load at height or from portable equipment should be reduced by design — for example by lowering the loading point, providing a suitable fixed or integrated access platform with appropriate edge protection, or otherwise presenting the loading position at a height and reach suited to the operator. Where access equipment remains necessary, it should be suitable and sufficient for the task, stable and appropriate to the loads being handled, and its use supported by a manual handling assessment covering the weights, reaches and postures involved. The loading tasks should be reviewed with operator input to confirm the chosen arrangement removes the ergonomic and fall-from-height risks so far as is reasonably practicable, with the access arrangements maintained and periodically reviewed.

Standards Referenced	
EN ISO 12100	Safety of machinery — General principles for design — Risk assessment and risk reduction

HAZARD 7 · EMERGENCY STOP AND INTERLOCK FUNCTIONALITY. · ACTION REQUIRED (AMBER)

LINKED ISSUES

- **Q77** — Regulation 16: Emergency Stop Controls
  AMC were unable to test this during the inspection.

Hazard / Finding:

During the inspection AMC were unable to functionally test the emergency stop and the guard interlocks fitted to the machine. As a result, the correct operation of these safety functions could not be verified at the time of assessment, and it cannot be confirmed that they will perform as intended on demand. A latent fault in the emergency stop or interlocking arrangement could therefore remain undetected, leaving personnel exposed to hazardous machine functions during normal operation, setting or maintenance.

Recommended Remedial Action:

All parts of the safety-related control system, including the emergency stop and guard interlock functions, must be functionally tested to confirm correct operation. Testing should verify that operating an emergency stop or opening an interlocked guard reliably brings the relevant hazardous functions to a safe state and prevents their restart until the device is reset and a deliberate start action is taken. Such testing should be carried out and recorded following installation or modification and repeated on a routine basis thereafter, at a frequency determined by the manufacturer's instructions or the machine's risk assessment, and always by a competent person. The outcome of each test should be documented, any device found not to operate correctly should be taken out of service or the machine prohibited from use until rectified, and functional testing of the safety functions should be established as a defined item within the machine's planned maintenance regime.

Standards Referenced	
EN ISO 13850	Emergency stop function — Principles for design
EN ISO 14119	Interlocking devices associated with guards — Principles for design and selection

HAZARD 8 · LOWER CONVEYOR DRIVES · ACTION REQUIRED (AMBER)

LINKED ISSUES

- **Q44** — Regulation 11: Dangerous Parts of Machinery - Guards and Interlocks
  Lower conveyors exposed shafts.

Hazard / Finding:

The conveyors associated with the tray returns have an exposed rotating shaft, which presents an entanglement hazard. Contact with the rotating shaft could draw in fingers, hands, loose clothing, hair or jewellery, resulting in entanglement and serious injury to anyone working near the conveyors during operation, cleaning or maintenance.

Recommended Remedial Action:

Access to the exposed rotating shaft must be prevented by extending the guarding over the shaft so that it is fully enclosed and cannot be contacted during operation. The guard should cover the full extent of the exposed shaft, including its ends, and be of sufficient strength and securely fixed so that it remains in position and cannot be readily displaced, with any openings sized and positioned so that a finger or hand cannot reach the rotating part. Where access to the shaft is required for maintenance, the guard should be secured by a means requiring a tool to remove, and the conveyor isolated and secured against movement before the guard is removed. Once fitted, the guarding should be confirmed as complete and secure, and its presence and condition included as a defined item within the machine's routine inspection and maintenance regime.

Standards Referenced	
EN ISO 13857	Safety distances to prevent hazard zones being reached by upper and lower limbs
EN ISO 14120	Guards — General requirements for the design and construction of fixed and movable guards

HAZARD 9 · ELECTRICAL INSPECTION REQUIREMENTS · ACTION REQUIRED (AMBER)

LINKED ISSUES

No linked issues

Hazard / Finding:

During the inspection, the on-site resource available to support access to the electrical panels was limited, as was the supporting electrical documentation. As a result, it was not possible to carry out an EN IEC 60204-1 inspection of the electrical equipment, nor to verify the suitability of the architecture of the safety-related controls against EN ISO 13849-1. The electrical condition of the machine and the integrity of its safety-related control system therefore remain unverified, and latent electrical or safety-function defects could be present but undetected, leaving personnel potentially exposed to electrical and machinery hazards.

Recommended Remedial Action:

A follow-up inspection of the electrical equipment should be arranged, with a suitably qualified and authorised person made available on site to open the electrical panels safely, and with the supporting electrical documentation provided. This inspection should be carried out against EN IEC 60204-1 to confirm the condition and compliance of the electrical installation. The architecture of the safety-related control system should be assessed against EN ISO 13849-1 to verify that each safety function achieves the required performance level and category for the risk it addresses, drawing on the electrical drawings and any available design information. Any defects or shortfalls identified during this inspection should be recorded and rectified, and the outcome used to confirm that the electrical equipment and safety-related controls are suitable and safe for continued use.

Standards Referenced	
EN 60204-1	Electrical equipment of machines — Part 1: General requirements
EN ISO 13849-1	Safety-related parts of control systems — Part 1: General principles for design

Inspector's Overall Conclusion

(No overall conclusion recorded)

Key:	✓ Yes — Green	✓ No — Red	✓ Amber (Yes or No)	✓ N/A — Blue	✓ N/A — Plain

REPORT SIGN-OFF

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