

**Sealed Air
Smithfield, NSW 2164**

VENUS
AUTOMATION

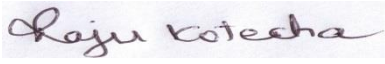
**HAZARD IDENTIFICATION,
RISK ASSESSMENT
AND
RISK CONTROL
RECOMMENDATIONS
FOR
Heat Shrink Wrap Machine EKH455
Sealed Air
Smithfield, NSW 2164.**



This risk control recommendation is intended for guidance purpose only. Failing to ensure professional installation of the correct equipment which has regard to the specific circuit design and operation of the plant on which it is being installed may create a safety hazard. Accordingly, Venus Automation is not liable for any loss or injury, whether direct or indirect, flowing from the incorrect product installation.



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Accepted	Mr. Ken Koh Account Representative/National Technical Support	

DOCUMENT VERSION

Version	Date	Author	Description
1	30 th May 2018	Raju Kotecha	Initial issue (V1)

Disclaimer:

- (1) It should be noted that this report was prepared by Venus Automation Pty Ltd for Sealed Air ("the customer") in accordance with the scope of work and specific requirements agreed between Venus Automation and the customer. This report was prepared with background information, terms of reference and assumptions agreed by the customer. This report is not intended for use by any other individual or organization and as such, Venus Automation Pty Ltd will not accept liability for the use of the information contained in this report, other than that which was intended at the time of writing.
- (2) **Please don't expect to find all comments regarding a specific area of concern to be noted in one particular area or under one heading, as other comments associated are most certainly to be found throughout the report or links associated to this report.** Reference to part only of the report will be seen as selective comment and is not acceptable or adequate for ascertaining findings. Failure to seek all comments made regarding a particular or specific concern, will be seen as negligent and may result in examiner of the report misleading or relying on the reports comments.
- (3) Don't ignore the recommendations made within the report resulting from this assessment. As a result of this assessment and the findings made, the references providing critical information along with the recommendations made, regarding yet not limited to, works required and further investigation must be considered. These references and recommendations are made not to be ignored and if these are not examined and/or carried out, it must be realized that the hazardous situation of the machine/plant may remain vulnerable being new or existing.



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Scope: The scope of this report is for hazard identification, risk assessment and risk control recommendations for **Heat Shrink Wrap Machine EKH455 Sr No: H1308030345** as per AS 4024.1-2014. (Machinery safety standard). This does not include identifying hazards and risk control recommendations for explosive atmosphere.

This report and risk control recommendations are restricted to the guarding and structural requirements and recommendations on safety control system for the machine and **DO NOT** include detailed analysis of safe operating procedure or Information handbooks.

References:

1. NSW Work Health and Safety Act 2011
2. NSW Work Health and Safety Regulation 2011
3. AS 4024.1-2014 Safety of machinery Standard

1.1 Summary of Statutory Requirements- NSW

Work Health and Safety Act 2011:

The Work Health and Safety Act 2011 provides an obligation on employers, machine designers, manufacturers and suppliers to ensure that machinery designed, manufactured or supplied is "safe and without risk to health when properly used."

Work Health & Safety Regulation 2011

Work Health and Safety Regulation has come into effect as of 1st January 2012. This regulation is binding to all states and territories of Australia. This regulation details the various responsibilities application to employers, designers, manufacturers and suppliers of plant (including machines) including identifying hazards and controlling risks.

Risk Assessment process:

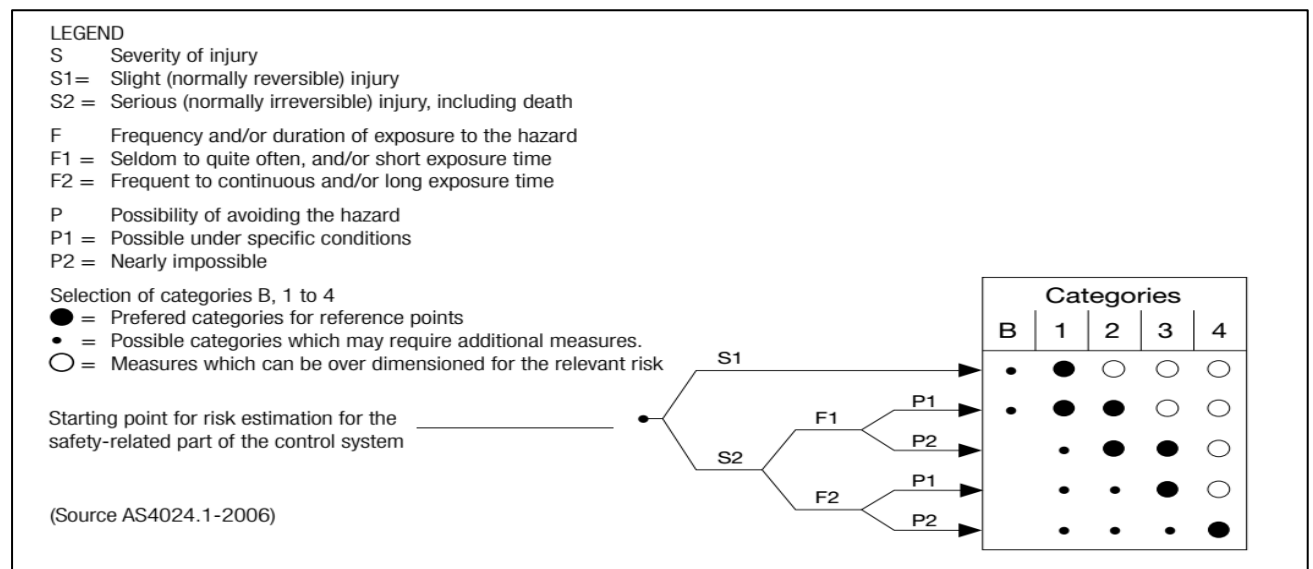
The Risk Assessment process focuses on the risk control measures deemed to be necessary to ensure that any risk from exposure to the identified hazards associated with the normal use of this machine have been minimized. The Risk Assessment combines the criteria of hazard identification, risk assessment and application of risk control measures to ensure that identified hazards are eliminated, or if this is not practicable, to minimize the risks as far as is reasonably practicable.

Hazard Identification:

Hazard identification refers to identifying all reasonably foreseeable situations, or events, which could cause injury or illness. This hazard identification process employed for this report involved visual inspection of the machine and consultation with relevant personnel.

Risk Assessment:

The hazard identification and consequent assessment of the risks associated with those hazards are as detailed in the "Risk Assessment" table below. The risk associated with each hazard has been assessed to determine the appropriate safety category required, as prescribed in AS 4024.1501-2006: Design of safety related parts of control Systems-General principles for design. The risk estimation has been determined following the format of Australian Standard AS 4024.1301-2006 Principles of risk assessment, considering the combined factors of severity of possible harm (S), probability of occurrence of harm (P) and frequency and/or duration of exposure (F).



Risk Control and Recommendations:

The recommendations for risk control are given in accordance with the 'hierarchy of risk control' methods (Elimination, Substitution, Isolation, Engineering, Administrative controls and Personal Protective equipment) and also consideration of what is 'reasonably practicable' in terms of implementation of risk control measures.

1.11 Date of Assessment:	17th December 2017
1.12 Consultations with and Positions:	Mr. Ken Koh (Account Representative, National Technical Support)
1.13 Indicate Why Risk Assessment was Initiated: To ensure machine meets AS 4024.1:2014 and NSW WHS Act and Regulation 2011.	
1.14 Equipment description	Heat Shrink Wrap Machine EKH455 is used for shrink wrap products.
1.15 Intended use and limits of machinery	Machine is intended to cut and heat wrap on products. Machine must be strictly used as per manufacturer's guidelines.
1.16 Accidents or incidences:	No known accidents or incidences
1.17 Energy sources on the machine	240VAC, Single Phase Electrics
1.18 Technical information: <input type="checkbox"/> Machine layout <input type="checkbox"/> Electrical Schematics <input type="checkbox"/> Pneumatic schematics <input type="checkbox"/> Hydraulic schematics No schematics is made available.	
1.19 Risk Analysis: <div style="margin-left: 40px;">Determination of the Limits of Machinery</div> <div style="margin-left: 20px;">i. Phases of Machine Life:</div> <div style="margin-left: 40px;">Machine is in very good condition. It may be operational for many more years.</div> <div style="margin-left: 20px;">ii. Limits of Machinery:</div> <div style="margin-left: 40px;">Machine can cut and shrink wrap on products. It must be strictly used as per manufacturer's guidelines.</div> <div style="margin-left: 20px;">iii. Range of Foreseeable Uses</div> <div style="margin-left: 40px;">As per manufacturer's guidelines and operating manual.</div> <div style="margin-left: 20px;">iv. Anticipated Level of Training</div> <div style="margin-left: 40px;">Low level of training is required to operate the machine.</div> <div style="margin-left: 20px;">v. Exposure of Other Persons</div> <div style="margin-left: 40px;">Various people could be working in the vicinity and hence exposure to hazards is quite possible.</div>	

1.2 Machine Photos:



Photo 1: Heat Shrink Wrap Machine: Machine overview from rear side



Photo 2: Heat Shrink Wrap Machine: Machine overview from front side



Photo 3: Heat Shrink Wrap Machine: Machine name plate

Hazard Identification and existing situation: Heat Shrink Wrap Machine



Existing emergency stop wired to machine control board.

Photo 4: Heat Shrink Wrap Machine: Front view with controls, lockable isolation switch and emergency stop



Photo 5: Heat Shrink Wrap Machine: View of heating area with guard open



Photo 6: Heat Shrink Wrap Machine: Heated wire that cuts the wrap



Photo 7: Heat Shrink Wrap Machine: View of heating area with guard open



Photo 8: Heat Shrink Wrap Machine: Existing proximity switch on guard

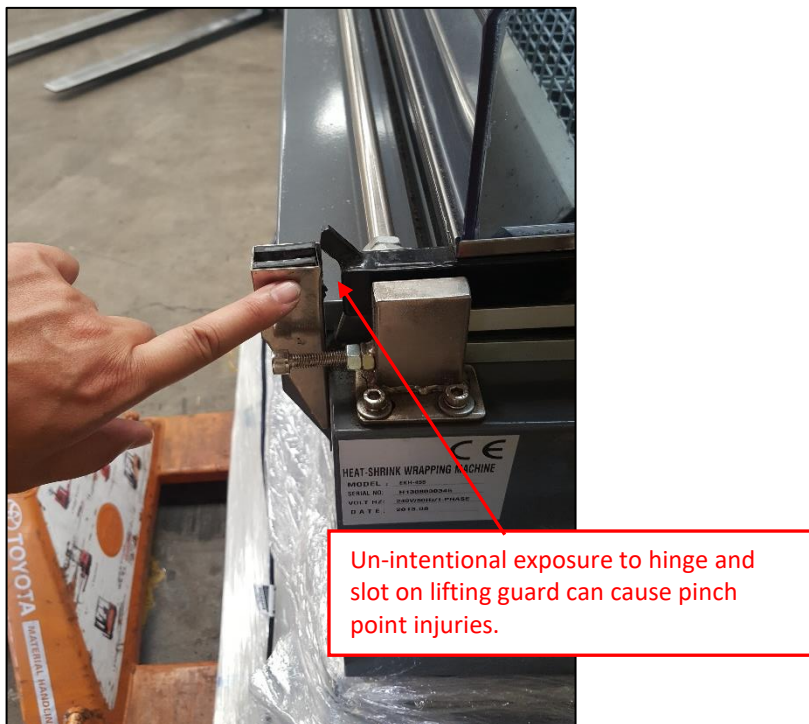


Photo 9: Heat Shrink Wrap Machine: Pinch point hazard on rear side of machine



Photo 10: Heat Shrink Wrap Machine: Heating element

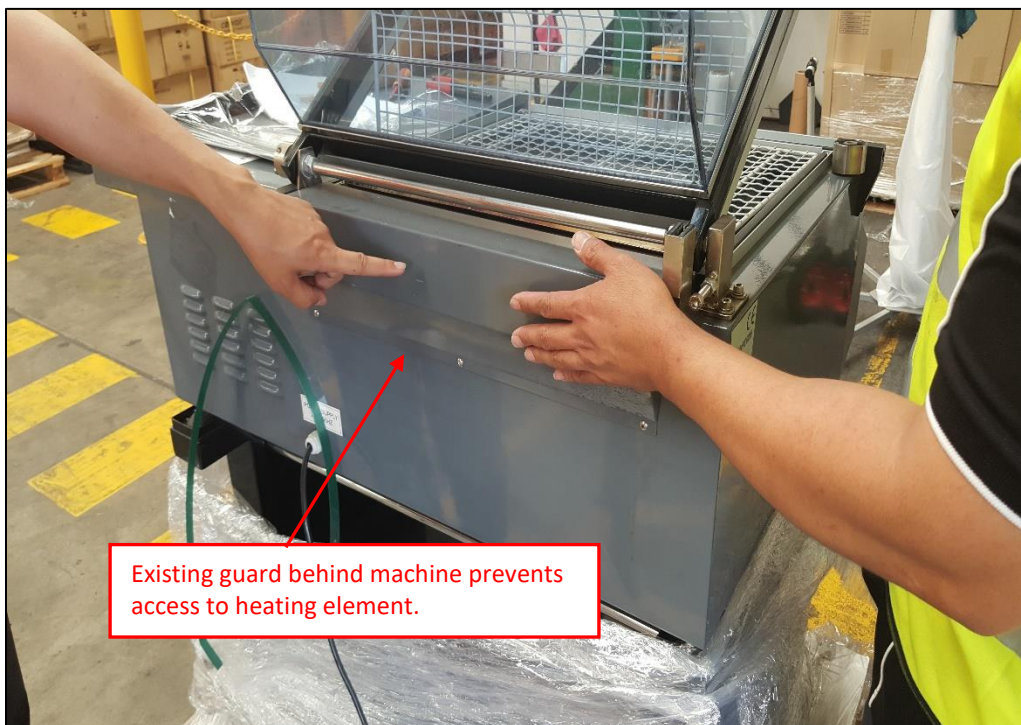


Photo 11: Heat Shrink Wrap Machine: Existing guard on rear of heating element



Photo 12: Heat Shrink Wrap Machine: Wrap pass through with roller



Photo 13: Heat Shrink Wrap Machine: Wrap pass through with roller

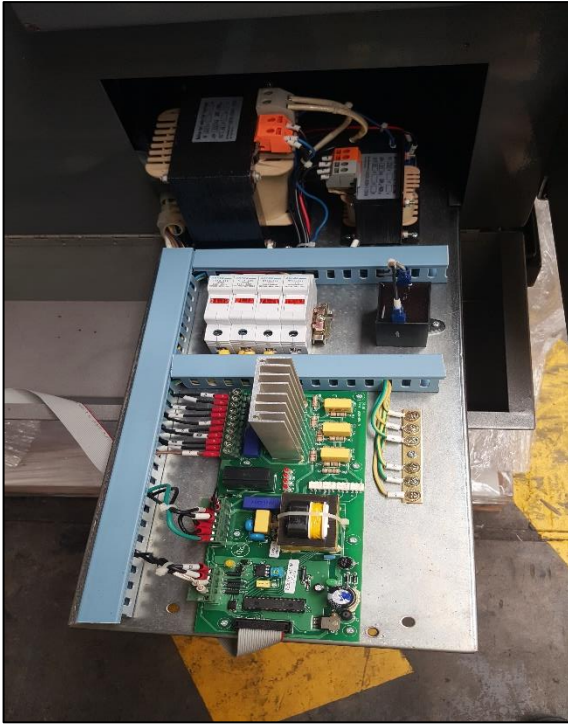


Photo 14: Heat Shrink Wrap Machine: Electrical panel

Hazard H1: Un-intentional exposure to hinge and slot on lifting guard (see photo 9) can cause severe pinch point injuries.

Risk assessment: S2-F2-P1: Category 3.

Severity of Injury: S2: Irreversible severe risk injury like pinch point injury.

Frequency of Exposure: F2: Frequent exposure (few times a shift)

Probability of avoiding hazard: P1: Possible to avoid the hazard as lifting guard is operated manually.

Existing situation: Shrink wrap rolls are manually loaded onto the wire mesh heating area of the machine. Operator pulls the shrink wrap and covers product on both sides. Frame with cutting wire is manually lowered on to the covered product which cuts and seals the wrap on the product as well shrinks the wrap due to heating process.

Heating wire is energized after switch contact is made with frame in closed position. Exposure to heating wire is quite unlikely.

Operators can get exposed to the pinch point hazard (see photo 9) described above.

An Emergency stop wired to the machine control board is provided on the front. No testing of Emergency stop was carried out during the risk assessment process.

Recommendations:

- 1) It is recommended to provide fixed guard around the pinch point hazard preventing accidental and/or unintentional access.
- 2) Supervisors, employees, casual workers, cleaners and anyone likely to be working with the machine should be trained and provided with information on the nature of the hazards and residual risk associated with the machinery.
- 3) Supervisors, employees, casual workers, cleaners and anyone likely to be working with the machine should be provided with appropriate PPE as some parts of the machines can be hot (around 50 deg C).
- 4) All signage to comply with the requirements of AS 1319-1994. Safety signs for the occupational environment.

Note:

- 1) All access gates and gaps in guarding should be covered as per Clause 189 of Workplace Health and Safety Regulation 2011. It stipulates that permanently fixed physical barrier should be implemented where access is not required for operation, cleaning and maintenance. Interlocking followed by presence sensing safeguarding of all guards (AS 4024.1601-2006) should be implemented where access is required for operation, cleaning and maintenance. If this is not practicable then the guard should be attached to the machine with fasteners which are removable only with the use of a tool. Access to this tool should be controlled by procedure. Bearing in mind that procedures are administrative risk control measures and as such, interlocking should be implemented where practicable (Clause 4.8, 4.9 and 6.4.4 of AS 4024.1601-2006).

1.3 Maintenance and LOTO: Machine is powered with removable power plug socket for electrical energy source. It is recommended to remove the plug from wall socket during maintenance thereby isolating the machine. Lockable isolation switch is mandatory as per requirement of Clause 5.1 of AS 4024.1603-2006.

1.4 Residual risk: Some parts of machine may remain hot after de-energization of electrical power.

1.5 Other hazards:

Electrical hazards: None identified

Hazards generated by noise: None identified

Hazards generated by vibration: None identified.

Hazards generated by materials and substances: None identified.

