



## The Importance of Risk Assessment in the Packaging Industry

*Applying the risk assessment process to achieve acceptable risk*

## Introduction

Packaging machinery and packaging-related converting machinery are prevalent across many industries. As with other industrial machinery, the Occupational Safety and Health Administration (OSHA) in the United States requires that employers provide a safe place of employment through the [General Duty Clause](#). However, OSHA does not have a regulation which specifically addresses packaging equipment. Instead, responsible users in the United States typically rely on industry consensus standards for guidance regarding how to reduce risk of injury to an acceptable or tolerable level.

The most appropriate of these consensus standards is developed by the Packaging Machinery Manufacturers Institute (PMMI). This standard, ANSI/PMMI B155.1-2016, addresses packaging machines on multiple levels. This standard provides general safety requirements that apply to a wide array of packaging equipment and contains very general requirements typical of a Type-A standard, but it also contains very specific requirements like that of a Type-C standard, as outlined in an earlier white paper ([Selecting Safety Standards for Machine Safeguarding Requirements](#)).

## Applying the Standard

The ANSI/PMMI B155.1 standard was harmonized with international (ISO) and European (EN) standards by the introduction of hazard identification and risk assessment as the primary method for analyzing hazards to individuals and achieving an acceptable level of residual risk. Knowing that designers and users have long applied an informal framework of risk assessment, the standard introduces a formal method to perform and document the process of risk assessment to ensure that reasonably foreseeable hazards are identified and corresponding risks are reduced to an acceptable level.



The most recent revision of this standard was released in November 2016. At the time of its approval, the committee responsible for developing the standard made recommendations for both suppliers and users of packaging equipment; within 6 months of approval of the standard, suppliers were to complete and implement design changes for new machinery, and users were to confirm that existing equipment had achieved a level of acceptable risk. However, this same recommendation was made in the previous (2011) edition of the standard. Therefore, by September 2011, all equipment in the United States meeting the consensus standard for packaging equipment should have theoretically achieved a new baseline requirement of acceptable risk. The most pragmatic methodology to achieve this goal is to follow the risk assessment process, addressed in a separate white paper ([The Risk Assessment Process](#)), followed by applying protective measures, as outlined in yet another white paper ([The Risk Reduction Process Utilizing a Hierarchy of Controls](#)).

## Theory versus Reality

While the recommendations of the B155.1 committee could have essentially eliminated all human injury on packaging equipment, the concept only works if applied correctly. In the first eight months of 2015 alone, OSHA had issued three news releases associated with safety of packaging machinery; some involving major injuries and/or willful violations for exposing workers to machine hazards. In the willful violations reported, existing protective measures were permitted to be bypassed. [OSHA defines a “willful violation” as one that is committed with intentional, knowing or voluntary disregard for the law’s requirement, or with plain indifference to worker safety and health.]

It is somewhat obvious that an effective risk assessment process will help identify known or unknown hazards and provide a methodical approach to applying adequate protective measures which are commensurate with the level of risk. However, there is another benefit of risk assessment which is often overlooked; an unbiased review of the expected tasks and associated hazards often sheds light on the feasibility of existing risk reduction measures. It is not uncommon to identify existing safeguards that are inadequate, not appropriate for the level of associated risk, or provide incentives to defeat or circumvent in order to complete assigned tasks.

In hind sight, the altruistic recommendations to implement and apply risk assessment principles to all packaging equipment with a deadline of six and a half years ago would have most likely prevented injuries and citations that the market is still experiencing today. However, as a voluntary consensus standard, it is difficult to enforce the use of such guidelines in a proactive manner. Instead, as the regulatory enforcement agency, OSHA is limited – by both directives and resources – to investigate reactively, usually after an incident has already occurred. With this in mind, the three cited cases reported in 2015 most likely only represent the tip of the iceberg. With regional and global market trends showing further increase in the use of packaging and packaging-related converting machinery, the industry cannot take a reactive approach to safety of personnel.



**Assessing Risk on All Equipment**

It is first important to recognize that occupational health and safety (OHS) personnel in most end-user facilities are tasked with an overwhelming challenge. At a high level, these professionals are expected to:

- Identify workplace hazards;
- Be consulted about workplace testing;
- Make recommendations to the employer; and
- Investigate accidents and near hits in the workplace.

To fulfill these responsibilities, OHS personnel need to be familiar with a litany of health and safety topics – from abatement, air contaminants and ergonomics to driver safety, fall protection and ladders. It is difficult for even the most fully staffed departments to cover all of the possible sources of workplace injury, and nearly impossible for all topics to be adequately addressed within small to medium enterprises (SMEs).

However, industry experts frequently find that only the obvious hazards have been addressed, often on the machines most easily recognized as ‘high risk.’ Unfortunately, the qualifications for making the hit list of ‘high risk’ equipment are often reduced to perceptions rather than facts. In many industrial environments, it’s common to see the large, heavy machinery protected with some level of safeguarding, while other similar machines are left unabated simply because of their size. Understandably, equipment which requires personnel to enter the workspace to perform tasks is apparent due to the fact that full body exposure exists. But what about the medium to small size machines, possibly even performing the same functions and often with the same hazards?

In the ANSI/PMMI B155.1 standard, the general requirement is that “risks associated with the use, operation and maintenance of packaging machinery shall be reduced to an acceptable level.” This

is not only limited to the ‘obvious’ sources of potential injury (such as palletizers and wrapping machines), but applies to ALL equipment in the facility – including case erectors, rotary fillers, and case packers, to name a few.

The most logical approach to prioritizing actions based on fact is to perform a risk assessment; possibly on similar processes, all equipment in the department, or potentially all production-related equipment within a facility. By thoroughly evaluating each machine utilizing a standardized approach, only then can an organization make informed decisions affecting worker health and safety.

**Conclusion**

Although not a legal requirement in all world markets, the risk assessment process is a clearly defined methodology to ensure that acceptable levels of machinery safety are achieved. Even for organizations with limited resources, the benefits of a pragmatic assessment process are easily rationalized by ensuring a consistent approach to risk reduction. With clearly defined limits for risk factors, acceptable risk, and minimum performance expectations, a company can ensure that sufficient protective measures have been applied while also preventing over-dimensioning.

Achieving balance between the ideology of safety, the realities of existing production concerns, and ever-present budget constraints can be intimidating. Rather than trying to short-cut the process and jump right into implementing protective measures, progressive companies realize that a systematic approach to outlining the process and goals is an essential prerequisite to meet OH&S objectives and market expectations in a cost effective manner. As with any new process, evaluating internal competencies and supplementing them with external resources when required will help ease the initial discomfort.

*This white paper is meant as a guideline only and is accurate as of the time of publication. When implementing any safety measures, we recommend consulting with a safety professional.*

For more information about a risk assessment, contact your local SICK Sales Representative or visit our web site at [www.sick.com](http://www.sick.com).

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