AUTOMATE

General Safety/Guarding of Equipment Motion & Hazards

Note to all exhibitors, please read

Safety on the show floor is of paramount importance, and that includes the personal safety of all attendees and exhibitors beyond the normal considerations of fire and slip/trip events. Industrial expositions present a number of potential hazards from exposure to operating machinery and processes throughout the hall. The following requirements are designed to minimize the exposure to potential hazards and apply to all exhibitors in the Automate show.

All demonstrations involving any machine motion (robots, machine vision system, conveyors, index tables, etc.) or any equipment or process operation that could create a hazard to persons shall have appropriate safeguarding installed.

Enforcement

Show Management will inspect displays to ensure that the hazard barrier guidelines are followed. If your display is found in violation of the rules or deemed an injury or safety hazard, you must disable all movement and/or make the recommended changes immediately (at your own expense).

General Guarding Provisions

- Barriers shall be installed in a position which prevents a person from inadvertently coming into contact with a hazard in the exhibit area.
- Barriers shall be designed and constructed to withstand people pushing or shoving against it (i.e., solid panels, rails or fencing). Flexible exhibit materials such as drapes, chains or rope shall not be used as barriers.
- Barriers should be at least 36 inches (0.9 meters) high and shall be installed so that a person cannot reach over, under, around or through the barrier and reach any portion of the hazard or hazardous motion area.

Robot Specific Guarding

- Robots which will not be operating at any time during the show (no power available) may be displayed in an open area.
- Robots which will only be operated in the manual reduced speed mode under the direct control/supervision of an exhibitor may be guarded per the General Guarding Provisions above.
- Robots which will operate in the automatic mode, or travel faster than reduced speed (250mm/sec) shall be properly guarded per one of the three options below:

A) The running robot demonstration shall be under the direct supervision AT ALL TIMES of designated exhibitor personnel. While not running, it must be deactivated in a safe manner that prevents unauthorized personnel from activating it. The General Guarding Provisions also apply for this option.

B) Safeguarding devices (such as light curtains or sensors) shall be installed to prevent or detect access to the hazardous motion area and shall be positioned at the proper safety distance so that the guarded hazard will be completely stopped (safe) prior to access being gained by a person entering the area. The General Guarding Provisions also apply for this option.

C) The entire perimeter of the robot's operating space shall be enclosed with barriers. The barrier shall be positioned so that the bottom of the barrier is no higher than 12 inches (0.3 meters) above the floor and the top of the barrier is no lower than 60 inches (1.5 meters) above the floor. Any opening in the barrier must be sized so that a person cannot access the hazard through the barrier.

Note - Operating space is defined as the space that is actually used by the robot while performing its task program.

- For exhibits displaying collaborative robot operations (i.e. safety-rated monitored stop, hand guiding, speed and separation monitoring, or power and force limiting by design or control), exhibitors may demonstrate a robot which complies with ISO/TS 15066:2016 or RIA TR R15.606-2016 on collaborative robot safety. The collaborative robotic equipment shall be free of pinch points, sharp edges, trip hazards, or other physical hazards. Robots demonstrating collaborative operations shall be operated only in the presence of badged exhibitor personnel. Please contact show management with questions.

Mobile Robots

- For exhibits displaying mobile robots in operation, care shall be taken to avoid hazardous contact between operating mobile robots and show attendees and other exhibitors. Such hazardous contact includes but is not limited to, for example: mobile robot tripping or striking a person and causing him/her to fall; mobile robot crushing or trapping a person's body part (e.g., foot); mobile robot equipped with an attachment that strikes a person.
- Mobile robots that are intended to move among show attendees without guarding as described above shall be free of pinch points, sharp edges, and other physical hazards, and shall be equipped with sensors and safety functions to enable them to detect persons and avoid hazardous contact with them.
- Mobile robots that do not meet these requirements, or are equipped with hazardous attachments, shall remain behind guarding as described above.

Special Provisions

- Machines that create eye, noise, blower, or heat hazards shall be appropriately shielded or attenuated (i.e., flash curtains on arc welding equipment).
- Any machine that produces metal chips, sparks, dust, or liquid spray or other process hazard must be shielded to prevent any harmful material from reaching a bystander.
- Applications that emit dust or fumes (i.e., spray paint and welding) must use exhaust venting to prevent dust or toxic fumes from escaping into the show area.
- All exhibitors must adhere to all applicable fire and safety codes for the exhibit hall and instructions from show management.