



ROBOT/COBOT/C-APL Liability Agreement, Haas Automation, Inc.

Buyer hereby agrees that the terms of this Agreement are in addition to all additional terms and conditions between the buyer and the seller (Haas factory Outlet). The following elements:

- 1. Robot operations (NOTE: the Haas Compact APL, or C-APL, is a Cartesian robot)**
 - a. (Manufacturer/Integrator; Testing organization; Type of robot and brief description of collaborative application; description of workplace application).
- 2. Description of the system**
 - a. (Descriptions, drawings, pictures; Safeguards applied to entire workplace; controls for choosing relevant types of operation)
- 3. Workplace application**
 - a. (environmental conditions, traffic routes, entries, exits; equipment, installations, machines, tools, production goods that can be typically found in the work area and their positioning, including that of the robot system; Drawing and pictures)
- 4. Work task**
 - a. (Operators relevant work activities, system relevant work activities; chronological sequence of all work activities; hazardous robot-to-person distance measurements; drawing of workspace)
- 5. Power and force limiting applications**
 - a. (information on payload, weight of moving parts of the robot; foreseeable contact situations between robot-to-person [Quasi-static or transient contact]; proposed risk reduction measures) are hereby defined as the “System” for the purposes of presenting the following additional terms and conditions.

Operator safety represents the most critical component of this System.

Buyer assumes all duties and obligations, as well as any and all liability arising out of its maintenance, operation, safeguarding, and/or use of the System, including without limitation the assumption of all duties and obligations related to complying with any applicable state and/or federal laws, rules, regulations, ordinances, and applicable industry standards pertaining to the safe operation and/or use of the System.

Haas Automation, Inc., does not warrant that Buyer’s operation or use of the System will comply with any existing or future industry standards, guidelines, or procedures (including but not limited to applicable ISO/ANSI/RIA standards), or with the requirements of any safety and environmental law, code, ordinance or regulation of any federal, state, municipality or other jurisdiction, including but not limited to state OSHA regulations.



Haas Automation, Inc., shall not be liable or responsible for any damages arising out of injury caused or allegedly caused by the System or any products or parts manufactured during its use. Haas Automation, Inc., shall not be liable or responsible for any damages arising from improper application, misuse or abuse of the System caused by the Buyer.

According to the ISO, ANSI and RIA Safety Standards, every System must have a risk assessment in order to determine if additional safety measures are necessary. This Agreement does not include a Risk Assessment and Haas Automation, Inc., is not making any assertions that the System is safe.

Buyer acknowledges that Haas Automation, Inc., provided a Risk Assessment Addendum to this Agreement as a reference document only. Haas Automation, Inc., recommends using a qualified Third-Party Risk Assessment provider if the Buyer does not already have this internal capability.

Buyer acknowledges that Haas Automation, Inc., may provide a Light Curtain safety system as a standard component on some robots, and that Haas Automation, Inc., offers optional, additional safety equipment, such as Area Scanners and Safety Fencing. Buyer acknowledges that the necessary safety devices and elements are dependent on the Risk Assessment of the System.

Buyer acknowledges that all optional safety equipment offered by Haas Automation, Inc., is intended for use with a Haas CNC machine. Any use of this safety equipment that is not in conjunction with a Haas CNC machine is not supported by Haas Automation, Inc.

By executing a copy of this Agreement, Buyer agrees that this Agreement constitutes a release and waiver of Haas Automation, Inc., liability and acknowledges that the safety of the System is the Buyer's sole responsibility prior to the commencement of use.

Company name _____

Signed by _____

Printed name _____

Date _____

***Note: Customer initials are required on each page of the attached "Risk Assessment Addendum".**



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Risk Assessment Addendum

According to the ISO, ANSI and RIA Safety Standards, every System must have a Risk Assessment (RA) in order to determine the appropriate safety measures. This addendum includes portions of OSHA Technical Manual (OTM) Section IV: Chapter 4, and it is to be used for reference purposes only to assist customers in their RA process. This Addendum does not include a Risk Assessment and Haas Automation, Inc., is not making any assertions regarding the safety of any customer's system.

OSHA Technical Manual (OTM)
Section IV: Chapter 4
VII. Risk Assessments (RAs)

Preparation and implementation of thorough risk assessments (RAs) with workers are critical for worker safety. RAs identify the hazards, potential exposures, potential risks, likelihood of risks, risk avoidance, and the risk-reduction protective measures needed to safely control and/or safeguard a robot application.

Further, since it is the employer's responsibility under OSHA to maintain a safe workplace for their employees, the employer is responsible for obtaining an RA and training employees to that RA prior to commissioning.

Robot Application RA General Process

An effective RA process starts with including knowledgeable employees in the process.

- A leader with expertise in process operations, the specific robotic application, and with knowledge of the RA process should be selected.
- Employees with specific or specialized expertise should also be invited to participate on the team. Meetings of the RA team should be arranged so that all of the team members can attend.
- The team should identify all of the tasks to be performed as part of the job, including any tasks that may be particularly hazardous or complicated. In order to keep RAs from becoming overly long and/or burdensome to the team, splitting some jobs into separate RAs may be advisable.
- The specific tasks that are important to safely complete the job or that present hazards to the workers should be listed on the RA. For example, "collecting tools" may not need to be listed as a task on the RA.
- Once the tasks have been listed, the RA team should identify the hazards of each task and list each identified hazard next to the task(s) to which the hazard(s) apply.

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Risk Assessment Addendum Continued

- Once the hazards have been identified, the team should consider the risks associated with each task and hazard.
- For each task/hazard, the most appropriate risk reduction techniques (controls and/or safeguards) should be identified for implementation.
- The team should welcome open discussion during preparation of the RA, and the final RA should be documented in writing.
- Each team member and the team leader should sign the RA as acceptable to them. If signing presents a challenge, then the risk assessment document should include the statement that agreement was reached.

After the RA is completed and accepted by the team, it should be distributed and made available to all affected employees, and to other affected employers. The documentation should also be retained for future reference and reviewed if any changes are made to the robot application.

VIII. Risk Reduction Measures

In addition to physical safeguards, protective devices, and other engineering controls, risk can be further reduced through administrative controls such as:

- Written robot application entry and exit procedures and training
- Lockout/tagout standard operating procedures (SOPs) and training
- Signs

PPE may include:

1. Hardhats
2. Hand protection for the intended use (sharp edges, heat, cold)
3. Safety glasses
4. Protective footwear
5. Hearing protection
6. Arc-flash protection
7. Respirators

Administrative controls and PPE should be implemented after attempts to design out (i.e., eliminate) the hazard and safeguards have been exhausted as required by the RA process.

Once all of the above risk reduction measures have been implemented, the question should be asked, “Does this robot application have sufficient measures in place to adequately protect workers?”

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Risk Assessment Addendum Continued

Collaborative Robot Application Risk Reduction

Collaborative robot applications operate with workers in shared, safeguarded spaces. The following questions should be answered to determine if collaborative operation is necessary, and to what extent:

8. Is the presence of a person integral to the application?
9. Do the robot and person have to share a workstation?
10. Do the robot system and person have to work on the same workpiece simultaneously?
11. Have task locations been identified and made known?
12. Is there safe access to the task location(s)?
13. Does the person need to be in physical contact with the robot, end-effector, or workpiece while the robot system is in motion?

Due to the expectation of possible worker interaction, collaborative applications can require specific risk reduction measures. Some key questions to ask before using a robot in a collaborative application include:

- Is the robot system and end-effector designed for use in a collaborative application?
- Does the robot application have the needed safety functions?
- Does this robot application have adequate risk reduction measures in place?
- Has this collaborative robot application considered contact events?

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Risk Assessment Addendum Continued

Does this robot application need additional risk reduction measures?

Beyond the active safety functions listed above, a collaborative robot application typically requires both active and passive protective measures to provide added protection. These may include:

Passive:

- Rounded corners and edges on the end-effector and fixture
- Padding on sharp corners and edges
- Eliminating projections on surfaces
- Compliant elements such as springs that limit force
- Smooth protective covers

Active:

- Presence-sensing interlocked coverings around the robot manipulator and/or end-effector that initiate a protective stop

Similarly, as with non-collaborative robot applications, administrative controls and PPE can add protection to further reduce risk to workers. Appropriate administrative controls may include:

Written application entry and exit procedures and training

- Lockout/tagout SOPs and training
- Collaborative space delineation (i.e., where can the robot system and application move?) [Delineation may be a diagram on the wall, painted lines on the floor, or something else that conveys the information]
- Safety signs that warn workers that this is a collaborative robot application [Signs should be designed and mounted per OSHA 29 CFR 1910.145]
- Post signs stating mandatory PPE [The RA should identify required PPE]

Customer initials: _____ Date: _____