Plant Hazard Analysis & Risk Assessment

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Model: Hoeflon VL500, C600, S600, S800, S1000 Vacuum Lifters.

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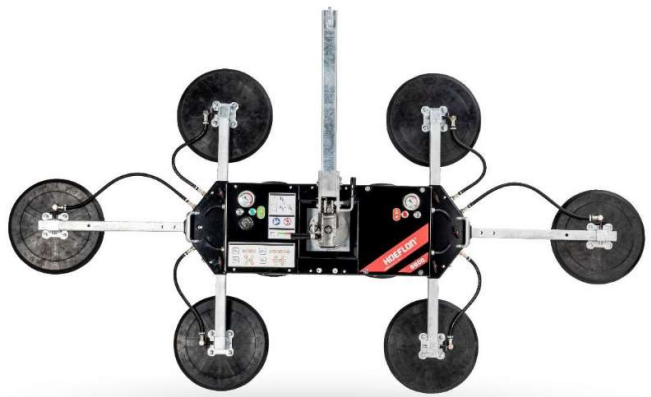

Person conducting assessment: Steve Parlevliet

This Hazard Identification and Risk Assessment document is Model specific. It is based on the knowledge that all new machines of this model were/are produced to the same specification and design. It assumes all examples of this exact model currently in service to be as per the original specification, and to have been and continue to be operated and maintained in accordance with the Manufacturers requirements, and with all applicable statutory and regulatory requirements of an original example of the Model for which it was prepared. This Assessment must be reviewed by all stakeholders as required:

- Having regard to the manufacturers approved options
- Having regard to the general arrangement of miscellaneous equipment or facilities that may be provided on the plant according to the end users requirements or specification
- According to the particular circumstances under which the plant is used and maintained
- As new Hazards are identified and/or as risks are reassessed
- As existing risk control measures are revised or new risk control measures are introduced and implemented
- As and when work procedures are altered or revised
- Having regard to any unauthorised alterations or modifications made to the design or operation of the equipment

Monitor, in conjunction with the design verification process delivered by Engineering Design Innovation have made every attempt to identify all reasonably foreseeable operating circumstances in preparing this Assessment, however no guarantee as to the completeness of this Assessment is provided or implied.
It is the responsibility of Owners, Employers and Operators to identify all hazards associated with the use of this equipment specifically applicable to the task to be carried out and to where the equipment is to be used or located. They must assess the risk potential for each of the identified hazards and ensure that all reasonably practicable steps are taken to ensure those risks are effectively controlled.

- All operators must be trained and competent in the safe use of this particular piece of equipment, and hold appropriate qualifications as required by applicable regulatory requirements
- Operators of the equipment to which this Plant Risk Assessment refers must read and understand the Instructions for Use and Warnings contained within the Operators Manual prior to use
- All Daily Pre-Start Checks, Routine and Periodic Inspections, Maintenance and Repairs to this equipment must be carried out in accordance with the requirements of AS2550.10-2006

To be used in conjunction with the relevant Crane Risk and Hazard Assessment

ID	Description of Hazard Potential		Activity	Risk control measures already implemented	Risk	Supplementary risk control measures	Risk score
	Origin	Consequence					
1	Operator Competency						
1.1	Untrained operator, not following proper operating procedures. Distracted operator. Following a poor system of work. Operator working alone.	Crushing Impact Trauma	Set up Operation Maintenance	Operation instructions explained in operator's manual	C4 Extreme	Train operators on safe use of the plant. Operator training should include at least the following: • pre-operation inspections • safe operation of plant • regular maintenance tasks • understanding of plant operation • capabilities and limitations • emergency procedures Do not operate the plant unless proper training has been received. Ensure operator's manual is kept with the plant for reference. Do not operate the plant when distracted, ill, excessively fatigued, or under the influence of drugs or alcohol. Implement appropriate system of work based on manufacturer's recommendations (e.g. operating instructions shown in operator's manual).	B1 Low
1.2	Misuse Unauthorised use of plant	Crushing Impact Trauma	Operation	Operator's manual warns about not using the plant for other than its intended purpose.	C4 Extreme	Do not use the Hoeflon S800 for any other purpose than its intended use as explained in the operator's manual. Do not operate the plant unless proper training has been received.	B1 Low

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						Keys are not to remain in an unattended machine.	
2	Plant Limitations						
2.1	Machine overload	Crushing Impact	Operation	Manual states Manual states varying capacities depending on cup configuration.	C4 Extreme	Learn and understand plant limitations. Do not exceed load capacity.	A2 Low
2.2	Faulty/out of order, or poorly maintained plant	Crushing Impact Trauma	Operation Emergency Maintenance	Operator's manual outlines plant maintenance schedule. Current maintenance inspections up to date as per manufacturers recommendation.	B4 High	Always perform pre-operation inspection before operating the plant. Implement 'tag out' procedure to isolate faulty/out of order plants. Do not use an 'out of order' plant. Record all faults in logbook. Perform plant maintenance as per manufacturer's maintenance schedule. Keep maintenance records / plant logbook up to date.	B1 Low
3	Plant Failure						
3.1	Alarm sounds	Crushing Impact	Operation Setup	Manual states it is forbidden to continue working while the alarm sounds!		Remain in vicinity of machine to hear audible alarm and flashing beacon.	B2 Low
4	Lifting Components						
4.1	Incompatible panel surface with suction head	Crushing Impact	Operation		C4 Extreme	Do not use the plant to lift panels with porous surfaces, or incompatible with the suction head.	B1 Low

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4.2	Slippery suction contact surface	Cushing Impact	Operation	Operator's manual states suction pads and contact surfaces to be dry and clean.	C4 Extreme	Ensure suction pads and material to be lifted is dry and clean to prevent it from slipping off the suction cups.	A1 Low
4.3	Load flexibility	Crushing Impact	Operation	The load must be rigid so that it does not bend excessively.	C4 Extreme		A2 Low
4.4	Repositioning of suction head units.	Impact Severing	Set up		C2 Medium	Ensure operators are using hand protection.	A1 Low
4.5	Vacuum pads unsuitable for the type of load being handled	Crushing Cutting Impact	Operation		C4 Extreme	Ensure material is non-porous, able to maintain vacuum seal, and dimensioned in such a way that its centre of gravity is within the area of suction caps. Implement 'tag out' procedure to isolate faulty/out of order plants.	A2 Low
4.6	Loss of vacuum: Damaged suction cups Pump failure Vacuum Leak	Crushing Cutting Impact	Operation Driving	The audible alarm warns the user if at least one of the two systems has an insufficient vacuum pressure. If the alarm sounds while lifting, put the load down immediately and safely.	C4 Extreme	Test vacuum system regularly. Safely lower load into a safe position if loss of vacuum occurs. Monitor vacuum system via gauges provided. Maintain a safe distance from the load being handled. Implement 'tag out' procedure to isolate faulty/out of order plants.	A2 low
4.7	System has enough voltage	Crushing Impact	Pre operation	Check the voltage on the voltmeter	C4 Extreme	Do not use the machine if the voltage is less than 12V while stationary, or less than 10V while the pump is running. If the voltage is lower than mentioned above, charge or change the battery before resuming work.	B1 Low

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4.8	Lifting machine and load	Crushing Impact	Operation	Check the pressure on the vacuum gauges	B5 Extreme	Do NOT use the lifter while the pointer of one or both of pressure gauges is in the RED area.	B1 Low
4.9	Lifting machine and load	Crushing Impact	Operation	Check that the machine is switched on and the green LED is lit.	C3 High	When the machine is switched off while primed to a load, none of the safety features and alarms work.	A2 Low
4.10	Lifting machine and load	Crushing Impact	Operation	Check that all locking pins are present and in fully locked position.	C5 Extreme		B1 Low
4.11	Lifting machine and load - positioning	Crushing Impact	Operation	Position the machine in the middle of the width of the load. Position the machine at the center or above the center of the height of the load.	C4 Extreme	Wait until the GREEN LED is active before lifting the load.	B1 Low
4.12	Tilting load	Uncontrolled movement	Operation		D3 High	The load can experience uncontrolled movement when the tilting lock is unlocked. To prevent this, hold the load firmly or seek assistance from other workers.	B1 Low
4.13	Rotating load	Uncontrolled movement	Operation		D3 High	The load can experience uncontrolled movement when the tilting lock is unlocked. To prevent this, hold the load firmly or seek assistance from other workers.	B1 Low
4.14	Releasing load	Uncontrolled movement	Operation	Make sure that the machine hangs tension-free and straight under the lifting point to prevent uncontrolled machine movement.	C4 Extreme		B1 Low
4.15	Alarm sounds			Check the environment and determine a safe location to place the load.	C3 High	Inspect the machine and resolve any malfunction. If the malfunction cannot be rectified, contact the manufacturer or supplier.	A1 Low

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				Lower the load as close to the ground as possible. Move the load to the location where it can be placed. Release the lifter.		Tag out machine. The machine must not be used until the problem / malfunction has been remedied!	

RISK MATRIX							ACTION	HEIRACHY OF CONTROLS
		CONSEQUENCE					**EXTREME –** Do not proceed, until further control measures are implemented to lower the risk. Senior management attention required. **HIGH –** Review and introduce additional controls to lower level of risk. Needs senior management attention. **MEDIUM –** Monitor and maintain supervision and controls. Specify management responsibility. **LOW –** Monitor and manage by routine procedures and monitoring.	1. Elimination – controlling the hazard at the source 2. Substitution – e.g. replacing one substance or activity with a less hazardous one 3. Isolation – e.g. use of barriers to shield or isolate the hazard, enclosures for noisy machinery, installing guards on machinery 4. Engineering – e.g. design and install equipment to counteract the hazard 5. Administration – policies and procedures for safe work practices 6. Personal Protective Equipment – e.g. respirators, ear plugs, face masks, safety glasses, safety shoes
		1. Insignificant	2. Minor	3. Moderate	4. Major	5. Catastrophic		
LIKELIHOOD	**E. Almost Certain** Is expected to occur immediately or within a short timeframe	HIGH	HIGH	EXTREME	EXTREME	EXTREME		
	D. Likely Will probably occur in most circumstances	MEDIUM	HIGH	HIGH	EXTREME	EXTREME		
	C. Possible Could happen and has occurred here or elsewhere	LOW	MEDIUM	HIGH	EXTREME	EXTREME		
	B. Unlikely Unlikely to occur	LOW	LOW	MEDIUM	HIGH	EXTREME		
	A. Rare Not expected to occur	LOW	LOW	MEDIUM	HIGH	HIGH		

CONSEQUENCE DESCRIPTORS			
SEVERITY	**SAFETY**	**ENVIRONMENT**	**BUSINESS**
5. Catastrophic	Potential for incident resulting in serious damage and/or fatality	The aspect is legally or contract regulated and has the potential for a disastrous long term impact resulting in prosecution.	Loss > $1M
4. Major	Potential for incident resulting in serious damage and/or permanent disabling illness or injury	The aspect is legally or contract regulated and has the potential for a serious long term impact resulting in prosecution.	Loss of service provision
3. Moderate	Potential for incident resulting in significant damage and/or temporary disabling illness or injury	Significant environmental aspect with short term impact resulting in improvement notice.	Loss $100K - $1M
2. Minor	Potential for incident resulting in moderate damage and/or requiring medical treatment.	The aspect is legally or contract regulated and has the potential for a moderate reversible short term impact resulting in an improvement notice.	Prolonged reduction in service provision or productivity
1. Insignificant	Potential for incident resulting in minor damage and/or injury requiring first aid treatment	The aspect is not legally or contract regulated and has the potential for a minor negligible impact.	Loss $10K - $100K