Risk Assessment according to AS 4024.1301	Manufacturer: Lingong Group Jinan Heavy Machinery Co.Ltd machine: Mobile Elevated Work Platform serial number: ,AR14J,AR16J	author: Lingong date: 2020.2.26	LGMG

1	Determination of limits, intended use	See below		Reference to additional documents
1.1	use allowed	The mobile elevated work platform allows users to work at a certain height		Manual
1.2	restrictions, limits of use allowed	The machine cannot be used to other propose		Manual
1.3	foreseeable misuse/misapplication	See AS/NZS 1418.10:2011 clause 1: scope.		Manual
2	Field of use	See below		
	private	N/A		N/A
	commercial	Professional		Manual
3	User population	Task	Qualification	
	qualified personnel	Required	YES	Training Evidence
	laities	N/A	N/A	N/A
	apprentices	N/A	N/A	N/A
	private use only:			
	children (declare age class)	☐ age above years		N/A
	older people	☐		N/A
	handicapped	☐ kind of handicap		N/A
4	Materials	See below		
4.1	dangerous operating supplies	☒ Electricity ☒ Hydraulic ☐ Pneumatic ☐ Thermal ☐ Radiation		Manual
4.2	Dangerous materials in the parts the machine is consisting of	The machine is not consisting of dangerous materials		Manual
4.3	Dangerous materials which may be processed by the machine	No dangerous materials processed by the machine		N/A

The phases of life according to AS 4024 include: transport, assembling, installation, placing into operation, setup, teaching, programming, changeover, working process, cleaning, process interferences, troubleshooting, fault clearance, maintenance, placing out of operation, disassembling, waste disposal

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Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
1 Transport, assembling, installation											
1.1	Hazards associated with all tasks	☒Errors of fitting ☒Lifting ☒Loading ☒Packing ☒Transportation ☒Unloading ☒Unpacking ☒Packing ☒Adjustments ☒Assembly ☒Connecting to disposal system (e.g. exhaust system, waste water installation) ☒Connection to power supply ☒Demonstration ☒Feeding, filling, loading of ancillary fluids (e.g.	☒Crushing ☒Cutting or severing ☐Friction or abrasion ☒Impact ☐Injection ☒Shearing ☒Stabbing or puncture	Machine , components and accessories	Inherently safe machinery design and inform users of the residual risks: Detail description for transportation, assembling and installation of machine are mentioned in manual.	AS/NZS 1418.10:2011 and MSD as reference,					OK

Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
		lubricant, grease, glue)									

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Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
1.2	Hazards associated with all tasks	☒Fixing, anchoring ☒Preparations for the installation (e.g. foundations, vibration isolators) ☒Running the machine without load ☒Testing ☒Trials with load or maximum load ☐Fencing	See above	See above	See above	AS/NZS 1418.10:2011 and MSD as reference,					OK
2 Placing into operation											
2.1	Hazards associated with all tasks	Refer to 1+3	Refer to 1+3	Refer to 1+3	Refer to 1+3	Refer to 1+3					OK
3 Setup, teaching, programming, changeover											
3.1	Hazards associated with all tasks	☒Adjustment and setting of protective devices and other components	☒Crushing ☒Cutting or severing	Machine and components	Inherently safe machinery design and inform users of the residual risks:	AS/NZS 1418.10:2011 + AS 60204.1-2005(+A1) + MSD as reference,					OK

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Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
		☒Adjustment and setting or verification of functional parameters of the machine ☐Clamping /fastening the workpiece ☐Feeding, filling, loading of raw material ☒Functional test, trials ☒Mounting or changing tools, tool setting ☐programming verification ☒Verification of the final product	☐Friction or abrasion ☒Impact ☐Injection ☒Shearing ☒Stabbing or puncture		Refer to AS/NZS 1418.10:2011, clause 7 and manual						

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Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
4 Working process											
4.1	Mechanical Hazards	☒Acceleration, deceleration (kinetic energy) ☒Angular parts ☒Approach of a moving element to a fixed part ☒Cutting parts ☒Elastic elements ☒Falling objects ☒Gravity (stored energy) ☒Height from the ground ☒High pressure ☒Machinery mobility ☒Rotating elements ☒Rough, slippery surface ☒Sharp edges	☒Being run over ☐Being thrown ☒Crushing ☒Cutting or severing ☒Drawing-in or trapping ☒ Entanglement ☒Friction or abrasion ☒Impact ☐Injection ☒Shearing ☒Slipping, tripping and falling ☒Stabbing or puncture ☐Suffocation		Inherently safe machinery design and construction, take necessary protection measures and inform users of the residual risks: Refer to AS/NZS 1418.10:2011, clause 7 and manual	AS/NZS 1418.10:2011 + AS 60204.1-2005(+A1)					ok

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Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
		☒Stability ☐Vacuum									

Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
4.2	See 4.1/4.3	See 4.1/4.3	See 4.1/4.3	See 4.1/4/3	See 4.1/4.3	See 4.1/4/3					See 4.1/4.3
4.3	Electrical Hazards	☐Arc ☐Electromagnetic phenomena ☒Electrostatic phenomena ☒Live parts ☐Not enough distance to live parts under high voltage ☒Overload ☒Parts which have become live under fault conditions ☒Short-circuit ☐Thermal radiation	☒Burn ☐Chemical effects ☐Effects on medical implants ☒ Electrocution ☒Falling, being thrown ☒Fire ☐Projection of molten particles ☒Shock	Any risk related to electrical fault will be checked automatically and view check according to manual	**Inherently safe machinery design and construction:** Refer to AS/NZS 1418.10:2011 + AS 60204.1-2005(+A1) No electronic circuit for safety circuit	AS/NZS 1418.10:2011 + AS 60204.1-2005(+A1) as reference,					See 4.1
4.4	Thermal Hazards	☐Explosion ☐Flame ☐Objects or materials with a high or low temperature	☐Bun ☐Dehydration ☐Discomfort ☐Frostbite	Not relevant	Not relevant	N/A					N/A

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Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
		☐Radiation from heat sources	☐Injuries by the radiation of heat sources ☐Scald								

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Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
4.5	Noise hazards	☐Cavitation phenomena ☐Exhausting system ☐Gas leaking at high speed ☒Manufacturing process (stamping, cutting etc) ☒Moving parts ☐Scraping surfaces ☐Unbalanced rotating parts ☐Whisting pneumatics ☒Worn parts	☒Discomfort ☐Loss of awareness ☐Loss of balance ☐Permanent hearing loss ☒Stress ☐Tinnitus ☐Tiredness ☐Any other (e.g. mechanical, electrical) as a consequence of an interference with speech communication or with acoustic signals	Refer to comments.	Inform users of the residual risks: The manual has indicated the sound pressure level below 70dB	AS/NZS 1418.10:2011+MSD					OK
4.6	Vibration Hazards	☐Cavitation phenomena ☒Misalignment of moving parts	☒Discomfort ☐Low-back morbidity	Vibration will neither make the passenger uncomfortable nor damage the structure	Inherently safe machinery design protects the vibration from discomforting passengers and from damaging the structure. Dynamic load test performed and found	AS/NZS 1418.10:2011					OK

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Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
		☒Mobile equipment ☐Scraping surfaces ☐Unbalanced rotating parts ☐Vibrating equipment ☒Worn parts	☐Neurological discorder ☐Osteo-articular discorder ☐Trauma of the spine ☐Vascular disorder		satisfactory						

Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
4.7	Radiation Hazards	☐Lionising radiation source ☐Low frequency electromagnetic radiation ☐Optical radiation (infrared, visible and ultraviolet), including laser ☐Radio frequency electromagnetic radiation	☐Burn ☐Damage to eyes and skin ☐Effects on reproductive capability ☐Genetic mutation ☐Headache, insomnia, etc.	Not relevant	Not relevant	N/A					N/A
4.8	Material/ substance hazards	☐Aerosol ☐Biological and microbiological (viral or bacterial) agent ☐Combustible ☐Dust ☐Explosive ☐Fibre ☐Flammable ☒Fluid	☐Breathing difficulties, suffocation ☐Cancer ☐Corrosion ☐Effects on reproductive capability ☒Fire ☐Infection ☐Mutation ☐Poisoning	Not relevant	Not relevant	N/A					N/A

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Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
		☐Fume ☐Gas ☐Mist ☐Oxidizer	☐ Sensitization ☐Static electricity risk								

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Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
4.9	Ergonomic hazards	☒Access ☐Disign or location of indicators and visual displays units ☒Design, location or identification of control devices ☐Effort ☐Flicker, dazzling, shadow, stroboscopic effect ☐Local lighting ☐Mental overload/underload ☐Posture ☐Repetitive activity ☐Visibility	☒Discomfort ☐Fatigue ☐ Musculoskeletal disorder ☐Stress ☐Any other (e.g.mechanical, electrical) as a consequence of human error	The position of control device need to be taken into account The access means need to be taken into account	Inherently safe machinery design	AS/NZS 1418.10:2011 as reference,					OK
4.10	Hazards associated with environment in	☒Dust and fog ☒Electromagnetic	☐Burn ☐Slight	Working condition and EMC need to be considered	Inherently safe machinery design and construction and inform users of the residual risks:	AS/NZS 1418.10:2011 + MSD as reference,					OK

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Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
	which the machine is used	disturbance ☒Lighting ☐Moisture ☒Pollution ☒Snow ☒Temperature ☒Water ☒Wind ☐Lack of oxygen	disease ☒Slipping, falling ☐Suffocation ☒Any other as a consequence of the effect caused by the sources of the hazards on the machine or parts of the machine		1.2204/108/EEC addressed 2. Lighting for the control panel is provided and the lighting for access is indicated in the manual 3. Snow, wind loads are considered in the design and structural calculation 4. Ambient temperature is defined in the manual 5. All electric parts are protected by the enclosure with enough IP degree according to AS/NZS 1418.10:2011						

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4.11	Combination of hazards	☐E.g.repetitive activity + effort + high environmental temperature	☐E.g. dehydration, loss of awareness, heat stroke	Not relevant	Not relevant	N/A					N/A
4.12	Energy loss ,breaking down hazards	☒ Failure of energy supply (incl. control circuits) ☒Unexpected ejection of machine parts or fluid ☐ Errors of fitting	☐Being thrown ☒Cutting or severing ☒Drawing-in or trapping ☐ Entanglement ☒Friction or abrasion ☒Impact ☐Injection ☒Shearing ☒Slipping, tripping and falling ☒Stabbing or puncture ☐Suffocation	All risk related to unexpected starting or energy loss need to be taken into account	Inherently safe machinery design and construction, take necessary protection measures: 1. Brakes and cut-off valves are designed to be engaged as soon as the power losses, preventing the lift from falling.	AS/NZS 1418.10:2011 + AS 60204.1-2005(+A1) + MSD as reference,					OK

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Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement

Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
5 Cleaning											
5.1	Hazards associated with all tasks	☒Adjustments ☐Cleaning, disinfection ☐Dismantling /removal of parts, components, devices of the machine ☐Housekeeping ☒Isolation end energy dissipation ☒Lubrication ☒Replacement of worn parts ☐Resetting ☐Restoring fluid levels ☐Verification of parts, components, devices of the machine	☒Crushing ☒Cutting or severing ☒Friction or abrasion ☒Impact ☐Injection ☒Shearing ☒Stabbing or puncture	Machine , components and accessories	Inherently safe machinery design and inform users of the residual risks: Refer to AS/NZS 1418.10:2011 and manual	AS/NZS 1418.10:2011 + MSD as reference,					OK

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Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
6 Process interferences, troubleshooting, fault clearance											
6.1	Hazards associated with all tasks	☒Adjustments ☒Dismantling /removal of parts, components, devices of the machine ☒Faultfinding ☒Isolation end energy dissipation ☒Recovering from control and protective devices failure ☐Recovering from jam ☒Repairing ☒Replacement of parts, components, devices of the machine ☒Rescue of trapped persons ☒Resetting	☒Crushing ☒Cutting or severing ☐Friction or abrasion ☒Impact ☐Injection ☒Shearing ☒Stabbing or puncture	Machine , components and accessories	Inherently safe machinery design and inform users of the residual risks: Refer to AS/NZS 1418.10:2011 clause 5 and manual	AS/NZS 1418.10:2011+ AS 60204.1-2005(+A1) + MSD as reference					OK

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Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
		☒Verification of parts, components, devices of the machine									

Identification of hazards				Risk evaluation			Risk estimation, AS 4024 or ISO 13849-1 or type I/II/III				
Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
7 Maintenance											
7.1	Hazards associated with all tasks	☒Adjustments ☐Cleaning, disinfection ☒Dismantling /removal of parts, components, devices of the machine ☐Housekeeping ☒Isolation end energy dissipation ☒Lubrication ☒Replacement of worn parts ☒Resetting ☐Restoring fluid levels ☒Verification of parts, components, devices of the machine	☐Crushing ☒Cutting or severing ☐Friction or abrasion ☒Impact ☐Injection ☒Shearing ☒Stabbing or puncture	Machine , components and accessories	Inherently safe machinery design and inform users of the residual risks: Refer to AS/NZS 1418.10:2011 clause 7	AS/NZS 1418.10:2011 as reference					OK
8 Placing out of operation, disassembling, waste disposal											

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Phase of life	Hazard group, type	Origin group, type	Potential consequences	occurrence or protection goal	Description of solution	Standards	S	F	P	pl	Statement
8.1	Hazards associated with all tasks	☒Disconnection and energy dissipation ☒Dismantling ☒Lifting ☒Loading ☒Packing ☒Transportation ☒Unloading	☐Crushing ☒Cutting or severing ☐Friction or abrasion ☒Impact ☐Injection ☒Shearing ☒Stabbing or puncture	Machine , components and accessories	Inherently safe machinery design and inform users of the residual risks: Refer to AS/NZS 1418.10:2011	AS/NZS 1418.10:2011 as reference					OK