

**Gantry Crane**

Business Name:		ABN:	
Business Address:			
Contact Person:	Phone:	Email:	

**THIS RISK ASSESSMENT IS APPROVED BY THE PCBU ON THIS PROJECT**

Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.

Full Name:		
Signature:	Title:	Date:

**CLIENT OR PRINCIPAL CONTRACTOR DETAILS**

Client:	SCOPE OF WORKS
Project Name:	
Project Address:	
Project Manager:	
Contact Phone:	
Date Risk Assessment supplied to Project Manager:	

SAMPLE

RISK MATRIX									
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	SCORE	ACTION	HIERARCHY OF CONTROLS	
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE			<b>Elimination</b> Remove the hazard.	
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED	<b>Substitution</b> Replace the hazard.	
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Review before work starts.	Isolation Isolate People from the hazard	
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	2M MODERATE	Ensure control measures in place.	<b>Engineering</b> Isolate the hazard	
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 HIGH	1L LOW	Monitor and keep records.	Administrative Change	
								PPE	

  

Risk Rating & Required Action:	
<b>4A</b>	Stop work. The risk is intolerable. Eliminate the hazard or redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or higher-level authorisation is required.
<b>3H</b>	Review and approve additional controls before task starts. Senior supervisor sign-off needed.
<b>2M</b>	Ensure all nominated controls are in place and effective. Proceed with caution; monitor conditions.
<b>1L</b>	Proceed, following standard operating procedures. Monitor and keep records.

  

Consequence Scale:			
Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
<b>Catastrophic</b>	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
<b>Major</b>	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
<b>Moderate</b>	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
<b>Minor</b>	First-aid only, no lost time	negligible delay	Isolated non-conformance
<b>Insignificant</b>	No injury	no schedule impact	Deviation caught and corrected on site

  

**Notes on Hierarchy of Controls:**  
Remember to apply controls in the preferred order shown by the coloured pyramid:

1. **Eliminate**
2. **Substitute**
3. **Isolate**
4. **Engineering**
5. **Administrative**
6. **PPE**

Always document **why** a lower-order control is accepted if elimination or substitution is not reasonably practicable.

*aligned with Safe Work Australia's Managing the risk of fatigue at work (2023) and ISO 45001:2018 clauses 6–8.*

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
1. Governance, WHS Duties and Consultation	<ul style="list-style-type: none"> <li>Lack of clear allocation of WHS duties and due diligence obligations for officers in relation to gantry crane operations and maintenance</li> <li>Inadequate consultation with workers, Health and Safety Representatives (HSRs) and contractors about gantry crane risks and changes to systems of work</li> <li>Absence of a documented WHS management plan specifically addressing plant and gantry crane risks under the WHS Act 2011 and WHS Regulations</li> <li>Poor integration of gantry crane risk management into broader organisational risk registers and business planning</li> <li>Failure to consider upstream duty holder obligations (designers, manufacturers, importers, suppliers, installers) when procuring or modifying gantry cranes</li> <li>Inadequate processes to ensure compliance with relevant Australian Standards (e.g. AS 1418, AS 2550 series) and regulatory guidance</li> <li>Insufficient review of incidents, near misses and audit findings to drive continual improvement of gantry crane safety systems</li> </ul>	High	<ul style="list-style-type: none"> <li>Establish and document a plant and gantry crane safety governance framework that assigns WHS Act 2011 duties, roles and accountabilities to officers, managers, supervisors and PCBUs</li> <li>Implement a formal consultation procedure requiring engagement with workers, HSRs and contractors on gantry crane procurement, modifications, procedures, training and scheduling of works</li> <li>Develop and maintain a specific Gantry Crane Safety Management Plan that aligns with the WHS Act 2011, WHS Regulations (plant, high risk work construction as relevant) and applicable Australian Standards</li> <li>Integrate gantry crane risks into the corporate risk register, including defined risk owners, review frequency and documented risk treatment plans</li> <li>Include upstream duty holder requirements in procurement and contract documents, such as provision of design verification, test certificates, manuals, load charts and conformity statements</li> <li>Establish a compliance register for all applicable legislation, codes of practice and standards relating to gantry cranes and review it at least annually or when legislation changes</li> <li>Implement a structured safety committee or WHS governance meeting schedule where gantry crane incidents, near misses, inspection outcomes and improvement actions are tabled and monitored</li> <li>Require officers to demonstrate due diligence by reviewing gantry crane safety reports, audit outcomes, maintenance performance and training completion, and by allocating adequate resources</li> <li>Establish a documented management of change (MOC) process for any significant change involving gantry cranes, including risk assessment, consultation, training and sign-off by competent persons</li> </ul>	Medium
2. Design, Procurement and Installation of Gantry Cranes	<ul style="list-style-type: none"> <li>Selection of gantry cranes that are not fit for purpose for the loads, duty cycles, environment or required lifting configurations</li> <li>Procurement of cranes without adequate design verification, load testing, certification or conformity documentation from suppliers</li> <li>Inadequate consideration of building structure, runway beams, foundations and clearances during design and installation</li> </ul>	High	<ul style="list-style-type: none"> <li>Develop a formal gantry crane procurement procedure requiring risk-based specification of capacity, duty class, environmental conditions, operating envelope and compatibility with existing systems</li> <li>Require evidence of compliance with relevant Australian Standards (e.g. AS 1418 series for cranes and AS 2550 series for safe use) and obtain all design calculations, certificates and test reports from the supplier</li> <li>Engage a qualified structural engineer to assess and certify supporting structures, runway beams, columns and foundations for the intended crane loads and dynamic effects prior to installation</li> <li>Include safety functionality requirements in procurement contracts, such as overload protection, upper and lower limit switches, emergency stops, anti-collision, end stops and appropriate guarding</li> </ul>	Medium

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	<ul style="list-style-type: none"> <li>Lack of engineering assessment for modifications, upgrades or attachment of ancillary lifting devices and lifting points</li> <li>Failure to specify and procure appropriate safety features such as overload protection, emergency stop devices, limit switches and anti-collision systems</li> <li>Insufficient planning for safe access for inspections, maintenance and repairs (e.g. access platforms, fall protection anchor points, isolation points)</li> <li>Poor integration of gantry crane controls with surrounding plant, traffic routes and production systems, creating interface risks</li> </ul>		<ul style="list-style-type: none"> <li>Implement a formal design review and hazard identification process (e.g. HAZID / risk workshop) prior to finalising crane design and layout, involving engineering, operations, maintenance and WHS representatives</li> <li>Ensure installation is carried out by competent and licensed installers under an installation method statement, with commissioning records, load testing and verification documentation retained</li> <li>Require engineering assessment and written approval by a competent person for any modifications, retrofits or additional lifting attachments, including update of drawings and load charts</li> <li>Design and document safe access routes, platforms, ladders and fall arrest systems for crane inspection and maintenance, in accordance with relevant height safety standards</li> <li>Conduct pre-access and inspection and commissioning sign-off against a checklist that covers safety functions, signage, isolation points, emergency systems and interface controls</li> </ul>	
3. Plant Registration, Licensing and Legal Compliance	<ul style="list-style-type: none"> <li>Failure to identify and register gantry crane plant where required by WHS Regulations and regulator requirements</li> <li>Operation of gantry cranes by personnel without the appropriate high risk work licence (where applicable) or verification of competency</li> <li>Inadequate record keeping for plant registration, design registration, inspection reports and load certificates</li> <li>Unclear processes to ensure contractors operating gantry cranes hold the necessary licences and competencies</li> <li>Lack of systematic review of regulatory changes impacting crane registration, inspection and licensing obligations</li> </ul>	High	<ul style="list-style-type: none"> <li>Establish a plant compliance register listing all gantry cranes, indicating which items require registration or design registration under WHS Regulations and the status of each</li> <li>Implement a verification of competency and licence checking procedure for all crane operators, including contractors, prior to granting operating authority</li> <li>Develop and enforce a site standard that gantry cranes cannot be commissioned or used until registration (where required) and all legal documentation is in place and verified</li> <li>Maintain centralised electronic records for plant registration certificates, design approvals, inspection and test reports, accessible to WHS and maintenance personnel</li> <li>Include verification of operator licences, competencies and inductions within contractor management and pre-qualification processes</li> <li>Schedule periodic internal audits to check compliance with licensing and registration requirements, including cross-checks with regulator databases where practicable</li> <li>Assign responsibility to a designated role (e.g. Plant Compliance Coordinator) to monitor legislative updates and regulator alerts relating to cranes and plant</li> </ul>	Low
4. Systems of Work, Procedures and Safe Use	<ul style="list-style-type: none"> <li>Absence of formal documented procedures for safe gantry crane operation, including load handling, exclusion zones and communication protocols</li> <li>Inconsistent application of safe working load (SWL) and working load limit (WLL) controls across shifts and work areas</li> </ul>	High	<p>[REDACTED]</p> <p>[REDACTED]</p>	Medium

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	<ul style="list-style-type: none"> <li>Lack of standardised pre-use inspection requirements and criteria for tagging out defective cranes or lifting gear</li> <li>Inadequate procedures for coordinating crane use in shared workspaces, creating collision and interaction risks with other plant and pedestrians</li> <li>Failure to manage simultaneous operations, suspended loads and lift planning for non-routine or complex lifts</li> <li>Informal workarounds or unsafe practices becoming normalised (e.g. side pulling, riding loads, lifting people) due to weak procedural controls</li> </ul>		[REDACTED]	
5. Training, Competency and Supervision	<ul style="list-style-type: none"> <li>Insufficient initial and refresher training for gantry crane operators, doggers and spotters in line with WHS Regulations and recognised standards of competence</li> <li>Reliance on informal buddy training without structured competency assessment and sign-off by competent assessor</li> <li>Inadequate training for supervisors and managers in their WHS responsibilities, crane hazards and how to verify safe systems of work in practice</li> <li>Lack of specific training for maintenance personnel on the crane model, control systems, isolation points and safety devices</li> <li>No system for competency re-assessment after incidents, extended absences or significant changes in plant or procedures</li> <li>Language, literacy, or cultural barriers affecting understanding of instructions, signage and training materials</li> </ul>	High	[REDACTED]	Medium

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			[REDACTED]	
6. Maintenance, Inspection and Testing Systems	<ul style="list-style-type: none"> <li>• Irregular or reactive-only maintenance leading to failure of critical crane components such as hoists, brakes, wire ropes, chains or limit switches</li> <li>• Lack of a formal preventative maintenance schedule informed by manufacturer instructions, Australian Standards and actual duty cycles</li> <li>• Missed statutory inspections, non-destructive testing or load testing, resulting in undetected structural or mechanical defects</li> <li>• Poor defect reporting and rectification systems, allowing cranes with known faults to remain in service</li> <li>• Inadequate verification of contractor qualifications and work orders for crane service providers and inspectors</li> <li>• Uncontrolled use of non-genuine parts or unengineered repairs that compromise structural integrity or safety systems</li> </ul>	High	[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]	Medium
7. Lifting Gear, Attachments and Load Management	<ul style="list-style-type: none"> <li>• Unsystematic control of slings, shackles, hooks, spreader beams and other lifting gear associated with gantry crane operations</li> <li>• Use of uncertified, damaged or mismatched lifting equipment with inadequate WLL for intended loads</li> <li>• No formal process to engineer and approve specialised lifting attachments, jigs or lifting points on loads</li> </ul>	High	[REDACTED] [REDACTED] [REDACTED]	Medium

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	<ul style="list-style-type: none"> <li>Inadequate segregation and storage systems for lifting gear, leading to confusion over status and suitability</li> <li>Failure to maintain up-to-date registers and inspection records for all lifting accessories used with the gantry cranes</li> </ul>		[REDACTED]	
8. Physical Environment, Layout and Traffic Management	<ul style="list-style-type: none"> <li>Poorly designed crane travel paths and work areas leading to collision risks with structures, other plant or people</li> <li>Insufficient separation between pedestrian walkways, vehicle routes and crane operating envelopes</li> <li>Inadequate lighting, visibility and signage in crane operating zones, increasing the likelihood of contact with obstructions or personnel</li> <li>Lack of engineered fall protection or edge protection where workers access crane runways, bridges or high-level maintenance positions</li> <li>Uncontrolled introduction of new plant, racking or storage that encroaches on crane clearances or crane support points for loads or slings</li> </ul>		[REDACTED]	Medium
9. Electrical, Control Systems and Energy Isolation	<ul style="list-style-type: none"> <li>Inadequate electrical design, protection and earthing of gantry crane power supplies and control systems</li> <li>Unclear or inconsistent lock out tag out (LOTO) and isolation procedures for maintenance, cleaning and fault rectification</li> <li>Bypassing, defeating or improper resetting of safety circuits, interlocks, limit switches or emergency stops</li> </ul>	High	[REDACTED]	Medium

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	<ul style="list-style-type: none"> <li>• Unmanaged software, firmware or control system changes that affect crane behaviour or safety functions</li> <li>• Lack of surge and power quality management in environments with multiple large plant items, leading to intermittent faults</li> </ul>		[REDACTED]	
10. Contractor Management and Third-Party Interfaces	<ul style="list-style-type: none"> <li>• Contractors performing installation, maintenance or operation of gantry cranes without adequate vetting of WHS capability and specific crane experience</li> <li>• Inconsistent standards between contractor and principal PCBU procedures for crane safety and lifting operations</li> <li>• Poor coordination between multiple PCBUs sharing a workplace, leading to gaps in control of gantry crane hazards</li> <li>• Lack of induction for contractors on site-specific gantry crane systems, emergency procedures and exclusion zones</li> </ul>	High	[REDACTED]	Medium
11. Emergency Preparedness and Incident Management	<ul style="list-style-type: none"> <li>• Insufficient planning for emergencies involving gantry cranes such as load drops, entrapment, structural failure, electrical faults or collisions</li> <li>• Unclear procedures for securing cranes and suspended loads during power failures, fire alarms or evacuations</li> <li>• Delayed response to incidents due to lack of training, equipment or communication systems in crane operating areas</li> </ul>	High	[REDACTED]	Medium

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	<ul style="list-style-type: none"> <li>Under-reporting of near misses and minor incidents associated with crane use, limiting learning opportunities</li> </ul>		[REDACTED]	
12. Health, Fatigue and Psychosocial Risk Management	<ul style="list-style-type: none"> <li>Operator fatigue or reduced alertness due to long shifts, high workload or inadequate breaks, increasing risk of errors in crane control</li> <li>Stress, time pressure and production demands leading to shortcuts and breach of safe lifting procedures</li> <li>Insufficient consideration of physical ergonomics for pendant remote control use, leading to musculoskeletal strain and distraction</li> <li>Lack of support for workers and concerns about crane safety, contributing to psychosocial risks and under-reporting</li> </ul>	Medium	[REDACTED]	Low
13. Monitoring, Audit and Continuous Improvement	<ul style="list-style-type: none"> <li>Failure to monitor whether gantry crane safety controls are implemented and effective over time</li> <li>Infrequent or superficial workplace inspections that miss emerging hazards or deviations from procedures</li> <li>Lack of performance indicators specific to gantry crane safety, hindering data-driven decision-making</li> <li>No structured review of external information such as safety alerts,</li> </ul>	Medium	[REDACTED]	Low

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	manufacturer bulletins and regulator notices relating to cranes		[REDACTED]	

SAMPLE

**EMERGENCY RESPONSE – CALL 000 FOR EMERGENCIES**

Ensure to have an Emergency Management Plan in place as well as adequate numbers of trained first aid staff with easy access to fully stocked first aid kits, rescue equipment, material safety data sheets, adequate access to emergency communication equipment and fire-fighting equipment suitable for all classes of fire and ignition sources.

**LEGISLATIVE REFERENCES**

RELEVANT LEGISLATION AND CODES OF PRACTICE. DELETE THE LEGISLATIVE REFERENCES FOR ANY STATE THAT ARE NOT APPLICABLE

**Queensland & Australian Capital Territory**

Work Health and Safety Act 2011  
 Work Health and Safety Regulations 2011  
 Legislation QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/work-health-and-safety-laws>  
 Codes of Practice QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice>  
 Legislation ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/acts-and-regulations>  
 Codes of Practice ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/codes-of-practice>

**Victoria**

Occupational Health and Safety Act 2004  
 Occupational Health and Safety Regulations 2017  
 Legislation VIC: <https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations>  
 Codes of Practice VIC: <https://www.worksafe.vic.gov.au/compliance-codes-and-codes-practice>

**New South Wales**

Work Health and Safety Act 2011  
 Work Health and Safety Regulations 2025  
 Legislation NSW: <https://www.safework.nsw.gov.au/legal-obligations/legislation>  
 Codes of Practice NSW: <https://www.safework.nsw.gov.au/resource-library/list-codes-of-practice>

**Western Australia**

Work Health and Safety Act 2020  
 Work Health and Safety Regulations 2022  
 Legislation Western Australia: <https://www.commerce.wa.gov.au/worksafe/legislation>  
 Codes of Practice WA: <https://www.commerce.wa.gov.au/worksafe/codes-practice>

**Northern Territory**

Work Health and Safety (National Uniform Legislation) Act 2011  
 Work Health and Safety (National Uniform Legislation) Regulation 2011  
 Legislation NT: <https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws>  
 Codes of Practice NT: <https://worksafe.nt.gov.au/factsheets-and-resources/codes-of-practice>

**Safe Work Australia Links**

Law and Regulation (All States): <https://www.safeworkaustralia.gov.au/law-and-regulation>  
 Model Codes of Practice: <https://www.safeworkaustralia.gov.au/resources-publications/model-codes-of-practice>

**South Australia**

Work Health and Safety Act 2012 (SA)  
 Work Health and Safety Regulations 2012 (SA)  
 Legislation for SA: <https://www.safework.sa.gov.au/resources/legislation>  
 Codes of Practice for SA: <https://www.safework.sa.gov.au/workplaces/codes-of-practice#COPs>

**Model Codes of Practice**

- Managing noise and preventing hearing loss at work
- Confined spaces
- Labelling of workplace hazardous chemicals
- Managing risks of hazardous chemicals in the workplace
- Welding processes
- First aid in the workplace
- Managing the risk of falls at workplaces
- Hazardous manual tasks
- Managing the risk of falls in housing construction
- Managing electrical risks in the workplace
- Demolition work
- Excavation work
- Work health and safety consultation, cooperation and coordination
- Managing the work environment and facilities
- How to manage work health and safety risks
- Managing risks of plant in the workplace
- Construction work

**Tasmania**

Work Health and Safety Act 2012  
 Work Health and Safety (Transitional and Consequential Provisions) Act 2012  
 Work Health and Safety Regulations 2012  
 Work Health and Safety (Transitional) Regulations 2012  
 Legislation for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/acts-and-regulations>  
 Codes of Practice for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/codes-of-practice>

Details of permits, licenses or access required by regulatory bodies (add or delete as required):

- Permits from local council
- Authorisation to commence work
- Any required documents.