Air Compressor

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

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE 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:

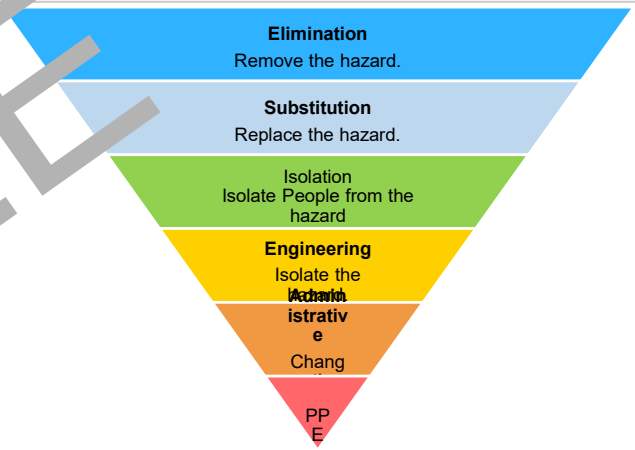
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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

RISK MATRIX

LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	SCORE	ACTION
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE		
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Rev before work
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACU	2M MO RATE	Ensure control measures in place.
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 H	1L LOW	Monitor and keep records.

HIERARCHY OF CONTROLS



Risk Rating & Required Action:

4A	Stop work. The risk is intolerable. E inate the hazar redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or hi er-level authorisati is required.
3H	Review and approve additional c rols b ask arts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are in ace and effe ive. Proceed with caution; monitor conditions.
1L	Proceed, following standard operating procedures Monitor and keep records.

Consequence Scale:

Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
Catastrophic	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
Major	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
Moderate	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
Minor	First-aid only, no lost time	negligible delay	Isolated non-conformance
Insignificant	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, Legislation and WHS Management System Integration	• Lack of a documented WHS management system covering compressed air equipment, resulting in ad-hoc decisions and non-compliance with WHS Act 2011 and WHS Regulations • Absence of clear roles, responsibilities and accountability for air compressor and air receiver safety (PCBUs, officers, workers, contractors) • Failure to identify the air compressor and associated air receivers as plant and, where applicable, as pressure equipment requiring registration and inspection • Inadequate consultation with workers and health and safety representatives on compressor-related risks, procedures and changes to plant layout or compressed air systems • No formal process for reviewing incidents, near misses and audit findings related to compressed air systems, leading to repeat failures • Insufficient integration of compressed air risk controls into broader WHS processes (e.g. isolation/LOTO, confined spaces, working at height, hazardous chemicals, noise management)	High	• Develop, implement and maintain a documented WHS Management System that explicitly covers air compressors, air receivers, compressed air lines and associated activities in line with WHS Act 2011 and WHS Regulations (e.g. Part 5.1 Plant and structures, pressure equipment requirements) • Define and document clear duties and responsibilities for officers, managers, supervisors, maintenance personnel and operators regarding selection, operation, inspection, maintenance and decommissioning of air compressors and receivers • Ensure formal plant risk assessments are completed and periodically reviewed for all air compressors, air receivers, compressed air lines and accessories, with consultation and participation of relevant workers and HSRs • Develop site-wide policies and procedures for plant safety that specifically reference compressed air hazards (stored energy, noise, airborne particles, line failure, ejection of parts) and link to existing systems for isolation, working in confined spaces, hazardous atmospheres and emergency response • Establish a formal consultation mechanism (toolbox talks, safety committees, pre-change reviews) for discussing compressor-related risks, proposed engineering changes to compressed air lines, and lessons learned from incidents • Implement a scheduled management review process (e.g. annually) to evaluate compressor-related WHS performance, audit findings, compliance with standards (e.g. AS/NZS 1200, AS 1210, AS 3788, AS 2299 where relevant) and to drive continual improvement • Ensure officers exercise due diligence by obtaining and staying up to date with knowledge of compressor and pressure equipment risks, and by verifying that appropriate resources and processes are in place to manage those risks	Medium
2. Procurement, Design and Installation of Air Compressors, Air Receivers and Compressed Air Lines	• Purchasing compressors or receivers that are not fit for purpose, non-compliant with relevant Australian Standards or unsuited to the site's pressure, volume or environmental conditions • Lack of engineering review of compressed air system design, resulting in undersized or poorly supported air lines, excessive pressure drops, or unsafe layouts near ignition sources or traffic routes • Failure to specify and procure appropriate pressure relief valves,	High	• Establish a formal plant procurement procedure requiring WHS and engineering input for selection of air compressors, receivers and associated components, including verification of compliance with relevant Australian Standards and manufacturer specifications • Require suppliers to provide design data, pressure ratings, test certificates and registration documentation (where applicable) for air receivers and pressure equipment prior to purchase and installation • Ensure compressed air system design, including receiver sizing, pressure settings and main distribution line routing, is reviewed and approved by a competent person (e.g. qualified engineer) before installation • Specify only rated and suitable materials for compressed air lines and fittings (e.g. steel, copper, approved composite systems), and explicitly prohibit the use of non-rated plastic pipework for compressed air	Low

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	automatic drains, isolation valves and safety interlocks for air receivers and main distribution lines • Improper siting of air compressors and receivers (e.g. poorly ventilated areas, near combustible materials, pedestrian thoroughfares or vehicle traffic) increasing risk of overheating, fire, noise exposure or impact damage • Use of incompatible materials (e.g. non-rated plastic pipework for compressed air) leading to potential catastrophic burst or fragmentation • Inadequate provision for maintenance access, safe isolation, and emergency shutdown during installation, leading to unsafe future work on the system		• Incorporate appropriate safety devices into the design and procurement specification, including correctly sized pressure relief valves, pressure gauges, non-return valves, automatic drains, isolation valves and emergency stop functions • Integrate requirements for safe access, clearances, guarding, ventilation, noise control, housekeeping and emergency egress into the compressor and receiver layout plans • Include in procurement contracts the requirement for commissioning documentation, as-built drawings, operating manuals, maintenance schedules and training materials to support ongoing safe operation	
3. Asset Registration, Compliance and Air Receiver Management	• Failure to register air receivers or pressure equipment with the regulator where required, resulting in regulatory non-compliance and lack of external oversight • No formal inventory of all air receivers and pressure vessels on site, including portable units, leading to missed inspections and uncontrolled ageing of equipment • Inadequate pressure rating identification on receivers and lack of clear labelling of maximum allowable working pressure (MAWP), test dates and inspection status • Uncontrolled modifications or repairs to receivers or safety devices (e.g. welding, relocation of nozzles, plugging of relief valves) without engineering assessment by a competent person • Operation of air receivers beyond design life, outside design conditions or with compromised corrosion allowance due to internal rust, condensate or contamination • No documented system for isolating, depressurising and tagging out receivers	High	• Create and maintain a centralised register of all air receivers and pressure equipment, including location, serial numbers, design codes, MAWP, volume, commissioning date and regulatory registration status • Review regulatory requirements for registration of pressure equipment in the relevant jurisdiction and ensure all applicable receivers are registered and kept current, with supporting documentation available for inspection • Implement a labelling system on each receiver showing MAWP, current operating pressure, last inspection date, next due inspection, and identification tag referenced in the asset register • Prohibit any unauthorised modification, hot work or structural changes on receivers and safety accessories; require engineering approval and competent-person assessment before any alteration • Implement a documented change management process for relocation, repurposing or de-rating of receivers, ensuring updated design, risk assessment and registration details are captured • Develop and enforce procedures for safe isolation, depressurisation, lockout/tagout and, where relevant, confined space controls prior to internal inspection or cleaning of receivers • Establish clear end-of-life and disposal criteria for aged or damaged receivers, including documentation of decommissioning, permanent depressurisation and physical rendering of vessels unusable	Medium

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	for inspection, internal entry (where applicable) or decommissioning			
4. Inspection, Testing and Preventive Maintenance Systems	• Lack of scheduled preventive maintenance and statutory inspections for compressors, air receivers and safety devices, leading to undetected defects or deterioration • Inconsistent or informal approach to carrying out compressor checks, resulting in missed early-warning indicators (e.g. abnormal noise, temperature, vibration, pressure fluctuations) • Failure of pressure relief valves, gauges, automatic drains or other critical safety components due to lack of testing or calibration • Maintenance and inspection tasks undertaken by untrained or unqualified personnel, increasing the risk of incorrect work and latent failures • Poor recordkeeping of inspections, te results, repairs and replacements, leading to inability to d ate compliance or track ends • Substitution of n genuine incompatible parts maintenan affecting reliability and safety integrit of the compressed air system	High	[redacted]	Medium
5. Operating Procedures, Safe Systems of Work and Carrying Out Compressor Checks	• Absence of formal operating procedures for starting, running, loading/unloading and shutting down compressors and associated plant, leading to inconsistent practices • Compressor checks being carried out without defined safe limits, isolation steps or escalation criteria, increasing the risk of operation with known defects • Uncontrolled use of compressed air for cleaning clothing, skin or equipment, leading to injection injuries, eye damage or dislodged debris	High	[redacted]	Medium

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	• Unclear requirements for authorisation to operate compressors, leading to inexperienced workers starting or adjusting equipment outside their competence • Inadequate procedures for responding to abnormal conditions (e.g. high temperature alarms, pressure spikes, oil carry-over, unusual noise or vibrations) • No formal lockout/tagout procedure integrated into compressor operation and routine checks, leading to unexpected energisation during verification or inspection		[redacted]	
6. Training, Competency and Supervision	• Lack of formal competency requirements for personnel involved in operating, inspecting, maintaining or replacing compressors and receivers • Inadequate training on the hazards of stored energy, pressure systems, air receiver management and compressed air line failures • Supervision levels that do not match the risk profile of compressed air operations, especially for new, young or inexperienced workers • No refresher training program, resulting in drift from procedures and normalisation of unsafe shortcuts for compressor checks and line unblocking • Contractors engaged for compressor replacement or air line works without verification of competence, licences or understanding of site-specific WHS procedures • Insufficient instruction on emergency actions, including what to do in the event of compressor fire, receiver rupture, line burst or serious leak	High	[redacted]	Medium
7. Energy Isolation, Lockout/Tagout and Change Management	• Work on compressors, air receivers or compressed air lines being performed without effective isolation of energy	High	[redacted]	Low

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	sources (electrical, pneumatic, stored pressure) • Inadequate lockout/tagout systems leading to inadvertent re-energisation or pressurisation during maintenance, compressor replacement or line modifications • Lack of defined depressurisation procedures for receivers and lines prior to inspection, unblocking, relocation or removal • Unmanaged changes to system configuration (e.g. adding extra receivers, branching lines, changing set pressures) without proper risk assessment and communication • Failure to identify and control interlinked systems where isolation of one compressor does not depressurise all connected receivers and air lines • Inadequate signage and physical barriers during work on compressed air lines, creating risk for uninformed workers entering hazardous zones		[redacted]	
8. Compressor Replacement and Major Works Management	• Planning and executing compressor replacement without a formal risk assessment, leading to uncontrolled interaction between trades, plant and existing compressed air systems • Use of lifting and rigging methods for compressor replacement that are not engineered or supervised, risking dropped loads or structural damage • Failure to properly disconnect, isolate and depressurise associated receivers and air lines before removal or installation of compressor units • Commissioning of replacement compressors without appropriate testing of safety devices, interlocks and integration with existing receivers and distribution lines	High	[redacted]	Medium

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	• Inadequate coordination of electrical, mechanical and control system changes, leading to miswired controls, bypassed safeties or incorrect pressure settings • Insufficient communication to affected work areas regarding shutdown schedules, temporary air supply arrangements and changed system behaviour after replacement		[redacted]	
9. Design, Installation and Management of Compressed Air Lines	• Compressed air lines routed through high-traffic, high-impact or high-heat areas without adequate mechanical protection, increasing risk of rupture or damage • Inadequate support, bracketing or expansion allowances for air lines, leading to sagging, vibration, fatigue or joint failure over time • Failure to segregate compressed air lines from electrical cables, flammable materials or ignition sources, increasi combined risk profiles • Poorly documented or unapproved alterations and tap-offs lines by workers or contract , leading to unbalanced syste pressures and weak points • Insufficient provision of isolation valves, drain points and pressure indicators on distribution li es, hampering safe maintenance and fault finding • Lack of clear identification and labelling of compressed air lines, resulting in confusion during maintenance, unblocking or emergency isolation	High	[redacted]	Medium
10. Unblocking, Cleaning and Fault Management of Compressed Air Lines	• Unblocking compressed air lines using unsafe methods (e.g. applying higher pressure, manual probing under pressure) leading to sudden release of debris or hose whip • Lack of a formal procedure for diagnosing and clearing line blockages,	High	[redacted]	Medium

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	resulting in improvised and hazardous practices by workers • Attempting to unblock lines without full isolation and depressurisation, exposing workers to potential injection injuries, flying particles or equipment failure • Using incompatible cleaning agents, solvents or mechanical methods that damage internal linings, seals or fittings, creating future failure points • Re-pressurising lines after unblocking without proper leak checks and verification of integrity, leading to delayed failures or bursts • No capture or containment arrangements for expelled contaminants, creating secondary hazards such as slips, respiratory exposure or environmental contamination		[redacted]	
11. Environmental, Ventilation, Noise and Housekeeping Controls	• Inadequate ventilation around compressors and receivers leading to overheating, reduced efficiency, potential fire risk and a[illegible] working conditions • Excessive noise [illegible]m comp[illegible] and air releases causing [illegible] damag[illegible] communication difficulties if not managed within regulatory exposu[illegible] limits • Accumulation of oil, condensate and other contaminants from compressors and receivers leading to slip hazards, corrosion or environmental harm • Poor housekeeping around compressor rooms and air receiver locations, obstructing access to emergency stops, isolation points or inspection areas • Inappropriate disposal of compressor oils, condensate and filters leading to environmental non-compliance and contamination	Medium	[redacted]	Low

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	• Inadequate lighting and signage in compressor and receiver areas, creating inspection difficulties and increasing the likelihood of errors		[redacted]	
12. Emergency Preparedness, Incident Response and Continuous Improvement	• No specific emergency response planning for compressor failures, air receiver ruptures, line bursts or fires involving compressed air equipment • Workers and supervisors unclear on roles, communication protocols and evacuation routes in the event of a compressor-related incident • Inadequate first aid arrangements and equipment for injuries associated with compressed air, such as injection injuries, eye trauma or hearing damage • Failure to investigate compressor and air line incidents or near misses, resulting in missed learning opportunities and repeated failures • Emergency shutdown devices not clearly identified, tested or maintained, leading to delayed or ineffective response during incide • Lack of integratio between compressor-relate emergen scenarios and broa nerger plans (e.g. fire, explosion, hazardous atmosphere)	High	[redacted]	Medium

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

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-of-codes-of-practice

Northern Territory
Work Health and Safety (National Uniform Legislation) Act 2011
Work Health and Safety (National Uniform Legislation) Regulations 2011
Legislation NT: https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws
Codes of Practice NT: https://worksafe.nt.gov.au/forms-and-resources/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

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.

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

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

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

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