Lathe Metal Cutting			
Business Name:		ABN:	
Business Address:			
Contact Person:	Phone:	Email:	

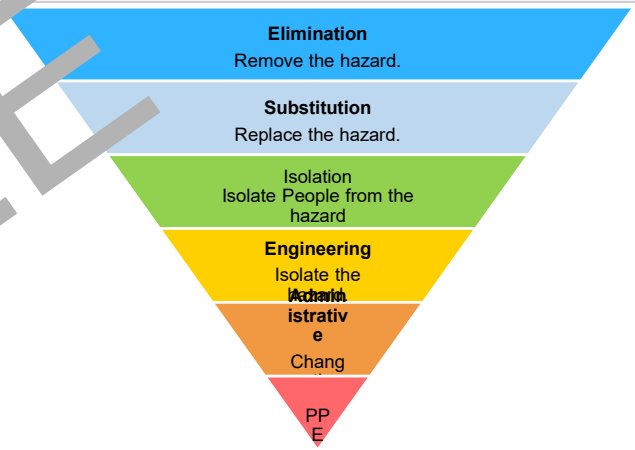
THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE PROJECT		
Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.		
Full Name:		
Signature:	Title:	Date:

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, WHS Duties and Consultation	• Lack of clear allocation of WHS responsibilities for lathe operations, including threading and venting work, leading to gaps in supervision and oversight • Inadequate consultation with workers, HSRs and contractors about lathe-related risks, changes to plant, or new threading/venting processes • Failure to ensure PCBUs along the supply chain (host employer, labour-hire, maintenance contractors) coordinate activities for safe lathe use • Absence of a formal WHS policy and plant safety management standard specifically addressing powered metalworking lathes • Insufficient review of compliance with the WHS Act 2011, WHS Regulation and relevant Australian Standards for metal turning machinery	High	• Establish and maintain a documented WHS governance framework that clearly assigns PCBU, officer, manager, supervisor and worker responsibilities for all lathe operations, including threading and venting work, in accordance with the WHS Act 2011 • Implement a formal consultation procedure requiring regular toolbox talks and WHS committee meetings where lathe hazards, near misses, threading issues and venting concerns are discussed, recorded and actioned • Develop written agreements or MOUs with labour-hire providers, maintenance contractors and installers to clarify shared duties and cooperation arrangements relating to lathe safety, guarding, isolation and emergency response • Create and maintain a plant safety standard that references relevant Australian Standards (e.g. AS 4024 series on machinery safety) and internal rules for purchase, installation, modification and use of metal lathes • Conduct periodic WHS legal compliance audits focused on plant and high-risk work, documenting gaps and corrective actions for lathe-related systems • Require senior management to review and sign off on an annual Lathe Safety Management Plan that covers risk control priorities, resourcing, training, and audit outcomes	Medium
2. Lathe Selection, Design, Procurement and Commissioning	• Procurement of lathes (including for threading and venting work) that are not fit-for-purpose or not compliant with current Australian Standards or supplier safety requirements • Lack of documented design risk assessment when specifying new lathes, threading tools, chucks, guards and ventilation attachments • Inadequate verification that safety features (interlocked guards, emergency stops, spindle speed controls, braking systems) function as intended before first use • Failure to consider future work scope such as internal threading, deep boring, and venting operations that may introduce additional entanglement, chip ejection or fume risks • Installation of lathes in unsuitable locations with poor access, inadequate	High	• Implement a formal plant procurement procedure requiring WHS review and sign off before purchase of any new or second-hand lathe, including confirmation of compliance with relevant Australian Standards and manufacturer specifications • Require suppliers to provide documented risk assessments, conformity statements, guarding information and detailed user manuals for each lathe and associated threading/venting accessories prior to delivery • Include specific functional safety requirements in procurement specifications, such as interlocked chuck guards, fixed guards around belts and drive systems, emergency stop devices, low-voltage controls and appropriate spindle speed/braking characteristics • Undertake and document a commissioning process for each lathe that includes testing of all safety functions, verification of guard integrity, validation of emergency stops and braking times, and sign-off by a competent person • Ensure layout and installation design includes sufficient space around the lathe for safe access, chip and swarf management, tool storage, and clear line of sight to controls and emergency stop devices • Incorporate future-use considerations into procurement decisions, ensuring the machine is compatible with threading attachments, venting setups and relevant extraction systems without compromising guarding or safe access	Medium

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	lighting, ventilation or segregation from other high-risk plant			
3. Policy, Procedures and Safe Systems of Work for Lathe Operations	• Absence of formal procedures for general turning, threading, facing and venting work on lathes, leading to inconsistent and unsafe practices • Inadequate rules for selection, inspection and use of workholding devices (chucks, collets, mandrels, faceplates) during threading operations • No documented requirements for safe speed, feed, coolant use and cutting parameters for various materials, including when vent holes or ports are being machined • Lack of clear procedural controls for dealing with long bar stock, pipe, or venting tubes extending beyond the headstock, increasing risk of whipping and entanglement • No system requirements for control of access to lathes (e.g. lockout when unsupervised, after-hours work protocols)	High	• Develop and implement comprehensive written safe operating procedures (SOPs) for all common lathe tasks, including metal cutting, threading (internal and external) and venting-related work such as machining vent holes or ports • Incorporate clear rules within SOPs for workholding selection and verification, including maximum allowable speed for specific chucks, use of recommended jaws, and prohibition of makeshift clamping for threading and venting jobs • Standardise cutting parameter guidelines (speed, feed, depth of cut, coolant use) for typical materials and operations and ensure these are readily accessible at each lathe station in both digital and printed formats • Include procedures specific controls for long stock and tubes used for venting applications, such as use of steady rests, tailstock support, and restrictions on overhang length • Implement access control policies for lathes, including supervisor authorisation for operation, requirement to follow pre-start checks, and lockout or secure shutdown when machines are left unattended Review and update SOPs at least annually and after incidents, near misses, or introduction of new tooling or venting methods	Medium
4. Training, Competency and Authorisation	• Workers using lathes without adequate competency in threading techniques, venting-related machining, tool selection and machine limitations • Supervisors unable to effectively oversee and correct unsafe practices due to insufficient technical understanding • No formal competency assessment or verification of prior learning for experienced tradespeople or contractors operating lathes • Inadequate training on specific risks associated with threading (tool breakage, poor chip control) and venting work (thin-wall tube collapse, vibration, chatter)	High	[redacted]	Medium

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	• Lack of refresher training leading to complacency, drift from procedures and normalisation of unsafe shortcuts		[redacted]	
5. Lathe Guarding, Interlocks and Physical Protection Systems	• Inadequate or defeated guarding around rotating chucks, spindles, leadscrews and drive belts, increasing entanglement risk • Failure or bypassing of interlocks on chuck guards or doors that allow the spindle to run with guards open • Insufficient guarding or barriers for long stock protruding from the rear of the headstock during threading or venting operations • Poorly maintained or incorrectly fitted chip guards, splash guards or shields, leading to exposure to metal chips and coolant spray • No systematic management of guarding when attachments or specia tooling for threading or venting work a installed	High	[redacted]	Low
6. Ventilation, Fume and Coolant Management	• Inadequate gener and local exhaust ventilation leading accumulati of metalworking fluid and aerosols during cutting and threadin operations • Exposure to fumes, vap particulates generated when machining coated, treated or exotic alloys, especially during high-speed threading and venting hole creation • Poor coolant management systems resulting in bacterial growth, odours and potential respiratory or skin sensitisation • Lack of system-level controls to ensure venting work that creates internal cavities does not trap coolants, fumes or pressure, creating blow-out risks when later opened	High	[redacted]	Medium

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	• No scheduled inspection and maintenance of ventilation and extraction systems connected to lathes			
7. Inspection, Maintenance and Isolation of Lathes	• Unplanned lathe failures due to inadequate preventative maintenance, leading to sudden stops, tool breakage or component ejection during threading or venting operations • Lack of formal isolation and lockout/tagout procedures for maintenance, cleaning, or tool changes, increasing risk of inadvertent start-up • Failure to identify worn chucks, toolposts, lead screws, feeds or brakes that affect accuracy and safe control during threading and venting work • Maintenance tasks carried out by unqualified personnel or external technicians unfamiliar with site WHS requirements • No structured system for defect reporting, follow-up and machine lock-out when safety-critical issues are identified	High	[redacted]	Medium
8. Work Environment, Layout and Housekeeping	• Poor workshop la ut leading to congestion aroun thes, cr collision and distrac s during critical threading or venting tasks • Inadequate lighting at the point cutting, making it difficult t erve surface finish, thread form or tool wear • Slip, trip and fall hazards from coolant, oil leaks, swarf accumulation and off-cuts around the lathe • Insufficient storage systems for tooling, threading gauges, mandrels and venting fixtures, resulting in clutter and manual handling risks • Noise and vibration from multiple machines operating in close proximity, impacting communication and concentration	Medium	[redacted]	Low

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			[redacted]	
9. Personal Protective Equipment and Clothing Policies	• Inappropriate clothing, gloves, jewellery or loose hair increasing risk of entanglement with rotating parts during threading and venting operations • Inconsistent use of eye, face and hearing protection leading to exposure to flying chips, swarf, coolant and noise • Reliance on PPE as the primary control instead of supporting stronger engineering and administrative controls • No formal system to manage and replace damaged or unsuitable PPE used in lathe work • Lack of task-specific guidance for PPE selection for high-risk operations such as heavy roughing, deep internal threading or extended venting jobs	Medium	[redacted]	Low
10. Emergency Preparedness and Incident Management	• Inadequate plann[redacted]g for emergencies such as entanglem[redacted] lac[redacted] injuries, tool or workp[redacted] ejection a[redacted] coolant or fume exposure during threading and venting tasks • Poor accessibility or visibility of emergency stop devices on lathes • Lack of first aid resources and trained first aiders in proximity to lathe work areas • Insufficient procedures for incident reporting, investigation and corrective action following lathe-related near misses, including threading tool failures or venting blow-outs • No drills or practice of response to lathe-specific emergencies, resulting in confusion or delayed response	High	[redacted]	Medium

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11. Contractor, Visitor and Young Worker Management	• Contractors operating or working near lathes without adequate induction into site-specific WHS requirements and lathe hazards • Young or inexperienced workers assigned to lathe threading or venting tasks without sufficient supervision or competency • Visitors entering lathe areas without awareness of exclusion zones, PPE requirements or emergency procedures • No formal system controlling who may program, set up or modify lathe operations for complex jobs such as intricate threading or vent port creation	Medium	[redacted]	Low
12. Monitoring, Review and Continuous Improvement	• Lathe-related risks not being systematically reviewed, leading to outdated controls that do not reflect current work practices, threading techniques or venting requirements • Lack of performance indicators for lathe safety, resulting in limited visibility of emerging trends or systemic issues • Inadequate follow-up on audit findings, incident investigation recommendations or worker feedback related to lathe operations • Complacency due to low incident rates, resulting in underinvestment in improvements to guarding, ventilation or training systems	Medium	[redacted]	Low

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