

# Angle Grinder Considerations—APGA

Version 1: 16.11.12



**Angle grinders are potentially one of the most dangerous power tools in any workplace. Most angle grinder injuries are from metal particles lodging in the operator's eye. However, the most serious injuries are typically from grinder kick-back, where the disc is thrust back violently towards the operator resulting in lacerations. Other reported serious injuries have resulted from shattering discs (usually a cutting disc).**

**Workers required to use angle grinders must be fully informed of the hazards and instructed in safe work procedures. WorkSafe Victoria have published a Safe Use of Angle Grinders Guidance Note (GUI01 42/01/03.11). This Guidance Note provides a good start to any hazard assessment regarding the use of angle grinders. There are many other documents like this available from other Government agencies some of which have been list below (refer to Additional Guidance Material).**

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When purchasing an angle grinder the following factors should be consider in order to choose the best suited grinder for the task:

- Task (i.e. buffing or grinding and pipe size)
- Length of grinder body (important in reducing kickbacks when operators are grinding the bottom of a pipe weld and where there are situations of restricted working room between the pipe and the ground)
- Girth of grinder body
- Grinder weight to power ratio
- Safety features i.e. anti-kickback clutch, dead man handle, soft-start vibration reducing handle
- Ability to adjust the disc guard position to suit the task
- Ability to adjust the auxiliary handle to suit the task, and
- Cost, maintenance and repairs.

There are some angle grinder issues specific to the Australia pipeline industry that should be considered also, these include:

- Examples of disc guards being cut back or even removed with the aim of reducing / preventing grinder kickback. Kickbacks typically occur when operators are attempting to grind the underside of a pipe weld. The concern with kickbacks occurring in this instance is the body position of the operator who is typically crouched down (refer to Figure 1). Operators should receive instructions on body positioning, how the grinder should be held and instructed according to manufacturer's operating manual. Disc guards must never be removed nor cut back.
- Examples where operators have been injured when disc guards have come off the grinder, become entangled with the disc and resulted in lacerations to the operator. Incidents of this nature occur as a result of the operator loosening the guard to allow it to move / swing as they grind the underside of the pipe weld and the top of the pipe weld. In these cases operators consider the loose guard to provide greater flexibility to grind the pipe weld whilst reducing kickbacks. Angle grinders must never be used with a loose disc guard.
- Examples of grinders being used without any auxiliary handle. Operators in the Australian pipeline industry typically opt to use angle grinders without any handle at all. In these cases there is potential for operators have reduced control of the angle grinder particularly during kickback. There have been reported cases where grinders have been dropped while in use. These cases have usually involved heavier angle grinder models with a thick body girth. Angle grinders should never be used without the use of an auxiliary handle.

For all of the above issues angle grinder selection and consultation with operators is a must. Other aspects and hazards to consider should include:

- Noise – angle grinders typically produce in excess of 85 dB(A) free running and therefore require the use of hearing protectors.
- Vibration – risk assessments should address grinder vibration levels which are known to cause hand- arm vibration syndrome (HAVS) and carpal tunnel syndrome.
- Eye protection – double eye protection is recommended. The use of Australian Standard quality face shield and high or medium impact safety glasses can reduce eye injuries from flying particles.
- Gloves – there are a vast array of gloves designed specifically for grinding that should be considered.
- Clothing – operators should never wear any loose fitting clothing capable of entangling with the angle grinder.

**Figure 1: Operator buffing underside of pipe weld.**



### **Additional Guidance Material**

- Safe Use of Angle Grinders Guidance Note, WorkSafe Victoria
- Angle Grinder Information Guide, WorkSafe Queensland
- Safeguard Angle Grinder Safety Information, SafeWork South Australia

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# APGA Angle Grinder Inspection

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Inspection By	Site	Date

Hazard Summary		
Entanglement	Impact and cutting	Electricity
Noise	Friction	Slips, trips and falls
Temperature	Fire	

Item	Findings	Findings				Comments Record Evidence
		C	NC	O	N/A	
1.	Is the workplace assessed prior to commencement of works?					
2.	Do the grinders being used comply with your company policy?					
3.	Is correct PPE used: <ul style="list-style-type: none"> <li>• Heavy clothing</li> <li>• Gloves (leather or other suitable material)</li> <li>• Leather apron or other suitable mat for heavy work</li> <li>• Eye and face protection from particles and slag</li> <li>• Substantial safety footwear</li> <li>• Respiratory protection</li> <li>• Ear protection?</li> </ul>					
4.	Is training provided in regards to safety and site specific management plans (PTW etc.)?					
5.	Is the equipment suitable for the job?					
6.	Are the correct discs being used?					
7.	Equipment: <ul style="list-style-type: none"> <li>• Disc condition</li> <li>• Confirm pre-start inspections</li> <li>• Current Test &amp; tag status</li> </ul>					
8.	First aid officer and kit on site?					
9.	Entanglement - Can anyone's hair, clothing, gloves, cleaning brushes, tools, rags or other materials become entangled with moving parts of the plant or materials?					
10.	Damaged or poorly maintained electrical leads, cables or switches?					
11.	Electrical safety RCD used?					
12.	Can anyone using the plant, or in the vicinity of the plant, suffer injury due to exposure to noise?					
13.	Can anyone using the plant, or in the vicinity of the plant, slip, trip or fall (Housekeeping, floor condition, water etc.)?					



Item		Findings				Comments
14.	No flammables in the immediate work area. Spark containment set up?					
15.	The activation "on" switch on grinders cannot be locked on i.e. dead man handle fitted?					
16.	Handles and guarding are in place, positioned appropriately and secure?					
17.	Work piece is secured rigidly and firmly in place?					
18.	Well balanced stance?					
19.	Keep the grinding disc at a 15 to 30 degree angle to work?					
20.	The right amount of pressure or force is used (not excessive to slow the grinder down significantly)?					
21.	At the completion of the task the grinder has come to a complete stop before being put down?					
22.	Post use checks performed?					
23.						
24.						
25.						
26.						

Corrective Actions		
Action	Responsibility	Date

**Explanation of Findings**

**C** = Compliant/Acceptable to Company Standards

**NC** = Not Compliant to Company Standards Improvement Required

**O** = Observation/Opportunity for improvement

**N/A** = Not Audited