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| 1. **INTRODUCTION TO HOT WORK**
 |
| With welding and grinding safety must come first. With this work there is a risk of radiation, electricity, smoke, explosion and fire. Some of these dangers are "invisible" so extra precautions must be taken. |

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| 1. **EXPLANATION & RISKS**
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| 1. Definition of "hot work":
* work where an open flame is used 🡪welding, roofing, ...
* work where sparks are created 🡪grinding, flame cutters, ...

 | Examples:🡪work on pipes🡪steel constructions🡪installation of roof covering |
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| 1. The following risks are related to hot work:
* Risk of **fire/explosion**
* **Noise induced hearing loss/arc eye**
* **Electrocution / burning**
* **Respiratory system**/environmentaffected by the welding by fumes/gases
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| 1. **SAFETY REQUIREMENTS**
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| **ALWAYS REQUIRED !!! CHECK** |
| 1. **PERSONAL PROTECTIVE EQUIPMENT**
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| 1. protective clothing
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| * + - fire retardant
		- welding clothes, if required:
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| 1. safety glasses, if needed
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| * + - grinding glasses or goggles when grinding
		- welding glasses; the higher the intensity of the welding flame, the higher the glass number
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| 1. safety gloves
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| 1. safety shoes or boots
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| * + - http://www.safe-products.nl/images/PBM_kleding/pictogram_lasbril.gifwith rubber soles and isolated steel caps for electric welding
 |  |
| 1. safety helmet, if necessary (with welding: welding helmet)
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| 1. respiratory protection, if necessary
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| 1. **WORKPLACE PREVENTATIVE MEASURES**
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| 1. Screen the work area completely off - demarcation
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| 1. Provide adequate ventilation
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| 1. Cube principle = in an imaginary cube around the workplace:
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| * + - Remove all combustible materials
		- Protect the material that cannot be removed (e.g. with sheet metal, fire blankets, ...)
		- Use shielding to prevent hot particles ending up in openings in the floor or wall (door, window)
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| 1. Always have a fire extinguisher in close proximity
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| 1. Provide a welding curtain during electric welding (UV light)
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| 1. When stopping work, even for a short period:
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| * + - Extinguish the flame
		- Switch the unit off.
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| 1. Additional measures in (the vicinity of) or at:
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| * + - Explosion zones : see TSR - Measurements
		- Confined Spaces : see TSR – Confined Spaces
		- Roof Work: see TSR – Roof Work
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| **ALWAYS REQUIRED !!!****CHECK** |
| 1. **WELDING**
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| 1. Make sure that the work material is in a good condition
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| * + - no faults or leaks
		- power and welding cables in a good condition
		- torches and burner ends must be properly cleaned
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| 1. Ensure that the underground is dry and isolated when lying or sitting while welding
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| such as a mat (for the work place also see point C.2. above) |  |
| 1. Hose protection
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| * + - against sharp angles
		- against hard/rough surfaces
		- no vehicles must drive over the hoses
		- no sparks must land on the hoses
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| 1. For welding material/surfaces
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| * + - Continuously measure for the presence of flammable products
		- Select the correct electrode, wire or burner tip
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| 1. Autogenous welding
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| * + - Additional safety measures while welding with gas supply:
			* Rupture protection at the beginning of the gas pipe
			* Flame terminator between the line and pressure regulator
		- Acetylene cylinders:
			* never place horizontally
			* minimum 2 bar cylinder pressure
			* protect against low temperatures
		- Oxygen cylinders:
			* min. 1 meter apart and avoid impacts
			* fasten (against wall or on trolley)
		- Propane: avoid too rapid withdrawal from the cylinder by using larger cylinder rack
		- Storage of gas cylinders
			* Ensure the storage area is well ventilated
			* Store acetylene and oxygen tanks separate from each other
			* Keep empty and full bottles apart from each other
			* Avoid direct exposure to the elements (no sun)
			* Do not keep oxygen cylinders in cellars or basements
			* Never heat gas cylinders
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| **ALWAYS REQUIRED !!!****CHECK** |
| 1. Electric welding:
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| * + - use the lowest possible voltage
		- welding transformer, electrode holder and cables must be insulated
		- when inserting or removing electrodes it is compulsory to use isolating gloves
		- metal chassis or housing of the welding station must be grounded
		- voltage or welding relays mounted in the welding station
		- keep the ambient temperature under control (humid conditions increase the risk of electrocution)
		- avoid electric welding in confined spaces with metal walls
		- when finished always switch the main switch of the welding station/welding transformer off
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| 1. **GRINDING**
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| 1. Prepare well
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| * + - Do not use wet grinding disks; moisture affects the binder
		- Check that the deadman button works properly
		- Use the correct disk; do not trim with a cutting disc
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| 1. Grind correctly and safely
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| * + - Use the correct tools for setting(wrench and pin spanner)
		- Take in a safe position relative to the disc cutter
		- Hold the disc cutter with both hands; you cannot hold a jumping disc cutter away with only one hand
		- Make sure that the cutting disc is stationary before putting it down
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| 1. **STAFF TRAINING**
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| * + - Operators of equipment must be properly trained
		- Maintenance and replacement of equipment must be done by qualified personnel
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| 1. **TESTING & INSPECTION**
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| * + - Welding accessories: valid periodic inspections in accordance with legal requirements
		- Grinders: periodic internal control with label - by qualified personnel
		- Other equipment 🡪 monitoring, inspection and labelling in accordance with legal requirements
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| Prepared by: | Operational Assistant | An Cornelis |
| Reviewed by: | Operational Assistant | An Cornelis |
| Approved by: | HSSE Manager | Gerardus Johannes Marinus Timmers |

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