

Corporate Standard Rules & Procedure Sub-Committee	Date	18-03-2023
	Standard Document No.	<b>HZL/CSRP/19</b>
<b>Hand Tools Guide</b>	Revision No.	0001/HTS/SRP
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## HZL Standards

### “Hand Tools”

	Issued by	Approved by
Name	Chairman, Corporate SRP Sub Committee	Chairman, Corporate Safety Council
Sign.		
Date		
Revision	1 <sup>st</sup> , 18 <sup>th</sup> March'2023	Document Number: 0001/HTS/SRP

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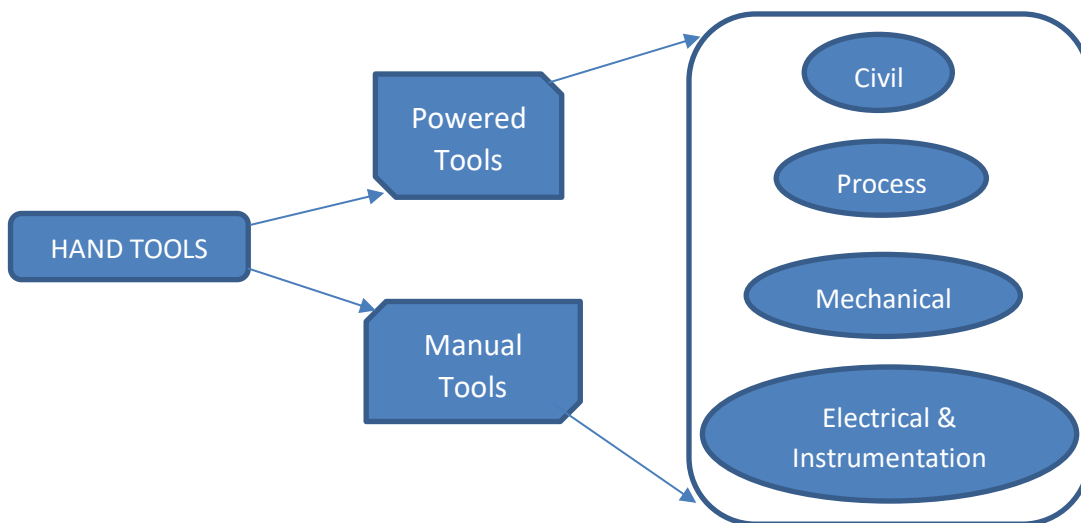
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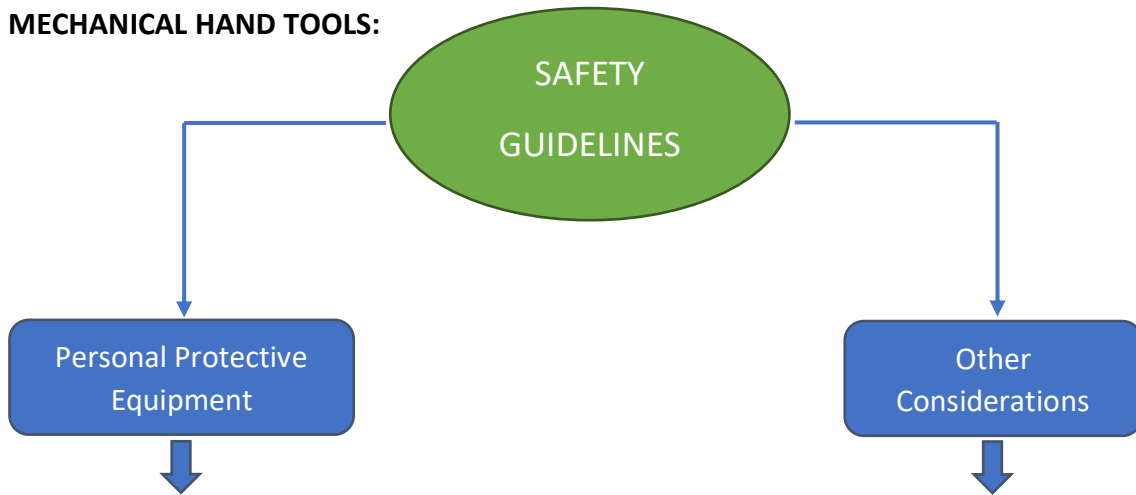
- Purpose:** To provide a guideline not only for usage of hand tools in safe manner as well as identification and selection of right tool for job.
- References:** Following resources are used to prepare the “Hand Tools” standard are:
  - **HZL-** IM/ Safety Portal, SAP, Plant Team
  - **Google-** OSHA, IS, EN, Benchmark Standards
- Associated Hazards:** Injury at Hand/ Leg/ Shoulder/ other body parts in case of either wrong selection of hand tool or mishandling
- Applicability & Responsibility:** This standard is applicable for all location of HZL, Line Management is responsible to implement this standard at all location
- Hand Tools’ Category:**



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**6. Hand Tools' User Guide-**

**6.1 MECHANICAL HAND TOOLS:**



**Personal protective equipment:**

1. Wide vision goggles, safety glasses or a face shield
2. Ear muffs or ear plugs
3. Safety boots with steel toecaps
4. Other fitted clothing wrt working area
5. Well-fitted gloves that allow a good grip of the tool

**Other considerations:**

1. Don't work with OILY or GREASY hands
2. Always wear the RIGHT SAFETY EQUIPMENT for the job
3. Use tools wrt Right (Size & Type) for your job
4. Keep your cutting tools SHARP and in good condition
5. Always carry & store pointed tools by your side with the points and heavy ends DOWN
6. Secure all small work & short work with a vise or clamp
7. Keep your tools in good condition, Loose or Cracked tools may cause injuries
8. After using tool, clean tool as well as area and return tool to its proper storage place in predefined position
9. Never carry tools in your pockets
10. Don't pry or hammer with a File as it may shatter
11. Don't use screwdrivers as chisels or pry bars
12. Don't try to increase your leverage by using a "cheater" with a wrench. Wrenches are designed at the right strength for their size and length
13. Never place tools and materials where they hang on the edge of a bench

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**6.1.1:-**
**ANGLE GRINDER**

TYPES

Applicability Area

Pictures




Material Code

TYPES

Applicability Area

Pictures

Material Code

<b>PNEUMATIC</b>	<b>VARIABLE SPEED</b>	<b>STRAIGHT</b>
For very precise jobs, with throttle levers it allows technical tasks such as feather edging and speed grinding	For wide variety of applications with different speed, paddle switch enhances control	Wheel is positioned at a 90-deg angle, making this the ideal tool for grinding outer edges and inner parts of pieces
		
N/A in HZL	N/A in HZL	N/A in HZL

<b>CORDLESS</b>	<b>CORDED</b>
W@H job (in Ladder/ Scaffold), Confined space	For daily routine jobs with better ergonomics as very lighter & less vibrating than cordless
	
248224003300-GRINDER,PWR TL,8500RPM,125MM,MM:CP-8350	Bosch GWS 900-125 for 125 mm, DeWalt DW824-125mm Angle Grinder, Ralliwolf 35135 125MM,Makita 9558NB 125mm Angle Grinder, Fein make type- WSG 11-125 RT have inbuilt auto stop dead man switch, Type & Model can be changed according to Disc size

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**Safety Alert**
**Safety Alert  
Description**
**Safety Alert  
Recommendation**

<b>IM/Zone-5/201920/091</b>	<b>IM/20182019/89</b>
<p>On 08.02.2020 at 11.35AM an incident occurred at ETP where IP was instructed by carpenter to check the grinder and hand over to him for grinding job. While checking IP switched on the grinder and he felt sudden vibration in his hand due to which grinder slipped from his hand and resulted in cut injury on right leg. Immediately IP was shifted to Zinc hospital for first aid treatment and was referred to GBH Udaipur for further treatment.</p>	<p>Date-24-07-2018-On 25.07.2018 in C Shift at around 01:15 AM at TCL allocation area, while cutting the 3meter poly pipe along its length by use of Hand Grinder, suddenly grinder slipped and it hit to the IP's foot in which IP sustained a laceration injury on his right foot. IP was given first aid at portal first aid station and then sent to the Zinc Hospital for further treatment.</p>
<ol style="list-style-type: none"> <li>Hira register to be updating to mitigate the hazard</li> <li>Helpers / unauthorized person must not use the power tools . Display and warning sign to be used and communicated</li> <li>SOP of safe usage and necessary PPE for usage of grinding machine and power tools to be made and training to be imparted</li> <li>Job specific JSA/ tool box talk to be done</li> <li>System to be made for authorisation of power tool usages in plant and in project</li> <li>No modification in grinding wheel to be made .</li> <li>No make shift arrangements to be made . this to be included in SOP</li> <li>Correct size of guard to be used . Guard size marking to be done on the grinder guard</li> <li>authorisation of the person by means of app / ID card provision</li> </ol>	<ol style="list-style-type: none"> <li>TBT shall be given to all the persons regarding line of fire hazards</li> <li>JSA/Risk assessment shall be conducted before start of the job</li> <li>Proper designated place shall be fixed for such jobs</li> <li>Pipe shall be secured before doing such critical job</li> <li>Some alternate arrangement shall be done for protection of electric cable from flying rocks of blast (GI Pipe arrangement)</li> <li>Only skilled person/ competent person must be deployed for the job</li> </ol>

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Risk Control  
Measures

**Do's:**

1. consider whether an angle grinder is actually the best tool to perform the task, because another tool may be just as, or even more, effective
2. when purchasing a grinder, choose one with adjustable handles that can be moved to suit both left and right-handed operators
3. choose a grinder that has an automatic cut-off or dead-man switch as part of the handgrip. This is designed to cut off power as soon as finger pressure is released. Automatic cut-off switches may not be available on smaller models and may not be practicable for certain tasks.
4. Batteries recommended by OEM only to be used and stored at designated place in case of battery operated tools.
5. do not use a grinder that is larger, heavier or more powerful than is necessary, as it is much easier to control a lighter tool

**Don'ts:**

1. guards must not be removed. The guard should cover half of the disc and be positioned between the disc and the operator
2. ensure that the correct type of disc is used for the task being performed. The wrong disc could shatter or 'grab' the work piece causing kickback
3. when using a grinder fitted with a cutting disc, keep the depth of cut to no more than double the disc thickness and avoid plunging the disc too far through the work piece



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**6.1.2:-**

**TABLE or BENCH GRINDER**

Applicability Area

Grinding/cutting any metal, sharpening any metal, Cutting masonry

Pictures



Material Code

Bosch GBG 60-20 Professional Heavy Duty Bench Grinder, Heavy Duty Bench Grinders-Rajlaxmi, or any reupdated

Safety Alert

Nil

Risk Control Measures

**Do's:**

1. Visually inspect the tool and all wheels for possible damage before mounting.
2. Check the mounting flanges for equal and correct diameter. They should be at least one-third the diameter of the wheel and relieved around the hole.
3. Always use a safety guard that covers at least one-half of the grinding wheel.
4. Run a newly mounted wheel at operating speed for at least one minute before grinding

Handle and store wheels carefully. Avoid dropping or bumping them..

5. Store abrasive wheels in a dry area not subject to extreme temperature changes. Some bonds may be adversely affected by excessive humidity and temperature differentials

6. Ensure supply source is provided through 30mA ELCB.

**Don'ts:**

1. Do not Use a cracked wheel or one that has been dropped or damaged.
2. Do Not Exceed the maximum operating speed specified by the manufacturer.
3. Do Not Overtighten the mounting nut.
4. Do Not Stand in front of the grinding wheel when the grinder is turned on.
5. Do Not Grind material that the wheel is not intended to grind.

6. Force the wheel onto the tool or alter the size of the mounting hole. If it doesn't fit, don't use it.

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**6.1.3:-**
**PENCIL GRINDER(Cordless/Corded)**

Applicability Area

To prepare surfaces, light deburring, light grinding/ filing

Pictures



Material Code

Ralliwolf FSG2 Flexible shaft grinder SINGLE SPEED, Ralli Wolf Die Grinder, RDG 25

Safety Alert

Nil

 Risk Control  
Measures

**Do's:**

1. Always carry out a 'pre-use' check
  - Ensure guarding is correctly adjusted and used
  - Ensure you have the correct drill bit/shape grinder for the material being grinded
  - Ensure any emergency stop devices operate
  - Report any defects promptly
2. Secure the piece with clamps or jigs wherever appropriate
3. Keep work area clean to make it free of obstructions and hazardous.
4. Wear correct PPE – Goggles, hearing protection etc
5. Ensure supply source is provided through 30mA ELCB.
6. Check that the power lead does not create a trip hazard
7. Batteries recommended by OEM only to be used and stored at designated place in case of battery operated tools.

**Don'ts:**

1. Never use the equipment without the guarding in place
2. Never use defective or blunt drill bits
3. Never forcibly drill, always allow the drill bit to do the grinding.
4. Never wear ties, loose clothing or jewellery when using rotating machinery

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**6.1.4:-**

**ELECTRIC BUFFING MACHINE(Cordless/Corded)**

Applicability Area

To smoothen/polish the uneven area of busbars, angles, steel

Pictures



Material Code

Bosch GPO 12 CE 7-inch 1250-Watt, Makita 1200 Watts Sander Polisher 9227C

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. consider whether a buffing machine is actually the best tool to perform the task, because another tool may be just as, or even more, effective
  2. when purchasing a grinder, choose one with adjustable handles that can be moved to suit both left and right-handed operators
  3. choose a grinder that has an automatic cut-off or dead-man switch as part of the handgrip. This is designed to cut off power as soon as finger pressure is released. Automatic cut-off switches may not be available on smaller models and may not be practicable for certain tasks
  4. Batteries recommended by OEM only to be used and stored at designated place in case of battery operated machine
  5. do not use a grinder that is larger, heavier or more powerful than is necessary, as it is much easier to control a lighter tool. Use face shield while using buffing machine to prevent bristles scattering.
- Don'ts:**
1. guards must not be removed. The guard should cover half of the disc and be positioned between the disc and the operator
  2. ensure that the correct type of disc is used for the task being performed. The wrong disc could shatter or 'grab' the work piece causing kickback
  3. Do not make any adjustment or change the wheel, when the power is in ON condition. Switch off the machine, remove the power plug and do any adjustments.

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**6.1.5:-**

**SAW MACHINE**

TYPES

Applicability Area

Pictures

Material Code




METAL	TREE	REFRACTORY
To cut the metal piece of any angle plate or channel	To trimming the tree branches	To cutting the refractory bricks
		
Dewalt 14 Inch Chop Saw, Model Name/Number: D28715, 4000 Rpm, Bosch GCO200 2000-Watt 14-inch Chop-Saw ,Pro Tools 2355 A Chop saw, Ralliwolf RW 14, RW355 Chopsaw	Greenworks 20222 Electric Chainsaw, 14-Inch, WEN 4017 Electric Chainsaw, 16" by WEN, Sun Joe SWJ599E 14-inch 9-Amp Tree Limb Master Electric Handheld Chainsaw with Low-Kickback	Metatherm make MTF-16 & MTF-18, Everon impex make semiauto machine

TYPES

Applicability Area

Pictures

Material Code

RIP CUT	CROSS CUT	HACK
For cutting through material, very often wood though sometimes metal or stone		
		
Nil		

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## Safety Alert

Nil

Risk Control  
Measures**Do's:**

1. Always wear rubber, insulated gloves and protective boots or shoes when operating. Safety glasses should be worn at all times.
2. Always carry the vibrator by grasping the motor
3. Caution should be used when handling equipment around water or when working in damp environments.
4. Ensure supply source is provided through 30mA ELCB.
5. Make sure base of saw is locked into place before cutting
6. Check lumber for nails, screws or anything else that is unsafe to cut.
7. Let saw blade reach its maximum speed before cutting.
8. Use blade guard and fences properly.
9. Maintain sure footing and proper balance while operating saw.

**Don'ts:**

1. Never pull or drag the unit by the shaft, head, or electrical cord.
2. Don't run the vibrator when not in wet concrete, the vibrator head will overheat. The vibrator should be kept moving, in an up and down motion.
3. Don't use if cord is damaged or frayed.
4. Don't allow any person to play with a concrete vibrator. If the person receiving this handout will not be the user of the equipment, forward these instructions to the operator.
5. Don't: Leave saw until it has stopped moving.
6. Don't: Put hands near saw blade unless it has stopped moving and the power has been disconnected.
7. Don't: Cut lumber that is too small to hold safely with your hands.
8. Don't: Operate saw at an unsafe pace.
9. Don't: Operate saw if your arms will cross over one another when making a cut.

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**6.1.6:-**

**POWERED WRENCH**



TYPES

Applicability Area

Pictures

Material Code

Risk Control Measures

WIRED	BATTERY OPERATED
To open fasteners in Normal area	To open fasteners in CS/ W@H area
	
DCA APB12 300W Electric Wrench, DeWalt DW292 ELECTRIC Impact Wrench Electric 1/2, Hitachi WR 16SA Electric Impact Wrench, Makita TW1000 - 25.4mm Impact Wrench	Bosch GDX 18 V-EC Professional Cordless Impact Wrench, Cordless Impact Wrench KPAB1685, Makita DTW251RFE Cordless Impact Wrench

**Do's:**

1. Use proper socket as per the size of fasteners
2. Use the right tool for the job, and the right tool for the user.
3. Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as sockets etc.
4. Use two or three-finger triggers for power tools. Use four-finger triggers only when the tool is balanced.
5. Ensure supply source is provided through 30mA ELCB.
6. Batteries recommended by OEM only to be used and stored at designated place in case of battery operated tools.
7. Check Battery status in case usage of Battery operated M/C

**Don'ts:**

1. Never carry a tool by the cord or hose.
2. Never yank the cord or the hose to disconnect it from the receptacle
3. Reduce excessive gripping force or pressure.
4. Avoid high-contact forces and static loading.
5. Keep all people not involved with the work at a safe distance from the work area.

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**6.1.7:-**

**BARREL PUMP**

TYPES

Applicability Area

Pictures

Material Code

TYPES

Applicability Area

Pictures

Material Code

Safety Alert

ROTARY HAND OPERATED	PISTON HAND OPERATED
Suitable for transfer of low viscous fluids.( Acid, Alkali, Gasoline, Diesel, Oil, Water, Alcohol, Solvents, Chemicals, etc.)	Suitable for transfer of low viscous fluids.(Acid, Oil, Water, various Chemicals, etc.)
	
Nil	Nil

ELECTRICAL OPERATED	PNEUMATIC OPERATED
Suitable for transfer of low viscous fluids.(Diesel, Kerosene, Acid, Alcohol, Oils, Chemicals, Solvents, Gasoline, Water, etc.)	Suitable for transfer of low viscous fluids (Diesel, Kerosene, Alcohol, Oils, Chemicals, Solvents.)
	
Nil	Nil

Nil
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Risk Control  
Measures

**Do's:**

1. Always follow all operating instruction as per manufacturer.
2. Ensure to use all PPEs necessary for operating barrel pumps.
3. Ensure direction of rotation CW /ACW before operating to avoid spillage.
4. Ensure to read MSDS of liquid to be pumped & take necessary precautions.
5. Pump should be washed out before it is used since processing lubricants may contaminate the fluids.
6. When using flammable liquids, pump containers should be grounded to avoid static electricity.
7. Wear anti-static or conductive footwear and avoid wearing silk and/or synthetic clothing, unless treated with anti-static solution

**Don'ts:-**

1. Do not pump with any solvent, chemical, waste oil and stained liquid.
2. Do not allow untrained person to operate the pump.
3. Never operate the pump near fire or source of spark. Some Media may be Explosive & Hazardous
4. Never fill containers in confined areas, e.g. inside a vehicle. Do not operate pump in areas where vapours can accumulate.
5. Avoid prolonged skin contact with petroleum products. Use of protective goggles, gloves and aprons is recommended in case of accidental splashing or spillage. Change clothing and wash skin contact areas promptly with soap and water



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**6.1.8:-**

**HYDRAULIC BEARING PULLER**

Applicability Area

To remove bearings from motors/any driven machine

Pictures



Material Code

SKF TMHC 110E

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Always use the bearing puller with all the provided arms.
  2. Tight the arms of bearing puller using the OEM supplied nut, bolts only.
  3. DO choose the right type and size of bearing puller as per application.
  4. Use well fitted gloves when using the bearing puller for having a proper grip.
  5. Ensure the puller is fixed centrally to the shaft and the jaws are properly fixed on bearing.
  6. Ensure that the equipment is stored safely when not in use.
  7. Check for any oil leakages in puller.
- Don'ts:**
1. DON'T operate undersized pullers for oversized applications.
  2. DON'T use 2 arms of puller using a 3 arm designed puller.
  3. Do not use a puller from straight to body, use it from sideways.
  4. Do not make any adjustments while the pressure is built. Release pressure before doing any adjustments.
  5. Never place hands or other body parts near rotating or moving parts.
  6. Dont use puller, if jaws of puller are not fixing properly on bearing.

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**6.1.9:-**

**HYDRAULIC JACK**

Applicability Area

To lift any heavy object/machine

Pictures



Material Code

Nil

Safety Alert

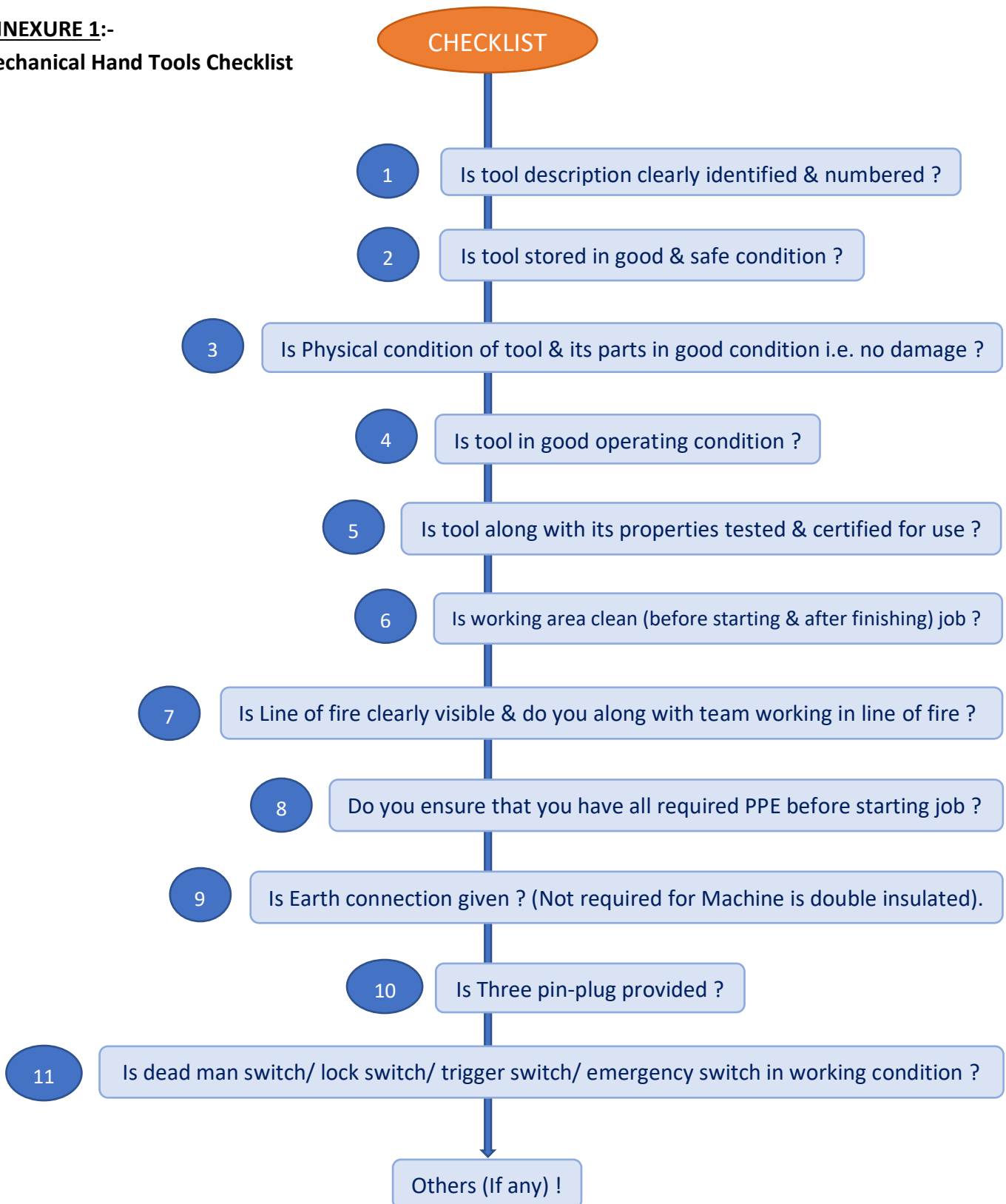
Nil

Risk Control Measures

- Do's:**
1. Always use the hydraulic jack on level and flat surface.
  2. Prior to using this machine the work area must be clear of all hazardous obstructions.
  3. DO choose the right size hydraulic jack as per application/job.
  4. Check for any oil leakages.
  5. Ensure hydraulic jack is fixed at centre of job.
  6. Ensure that the equipment is stored safely when not in use
- Don'ts:**
1. DO not use a undersized jack for large application. Cross check with OEM manual when in doubt.
  2. Do not store hydraulic jack near sharp edged tools. Chances of damaging hose.
  3. Do not work under lifted job. Ensure manual blocking separately in unavoidable cases.
  4. Do not use jack in loose/wet surface.
  5. Never place hands or other body parts under lifted portion. Release the hydraulic energy before working on jack.
  6. Never leave hydraulic jack which is in pressurised condition.
  7. Never store jack when it is pressurised. De-energise before storing.

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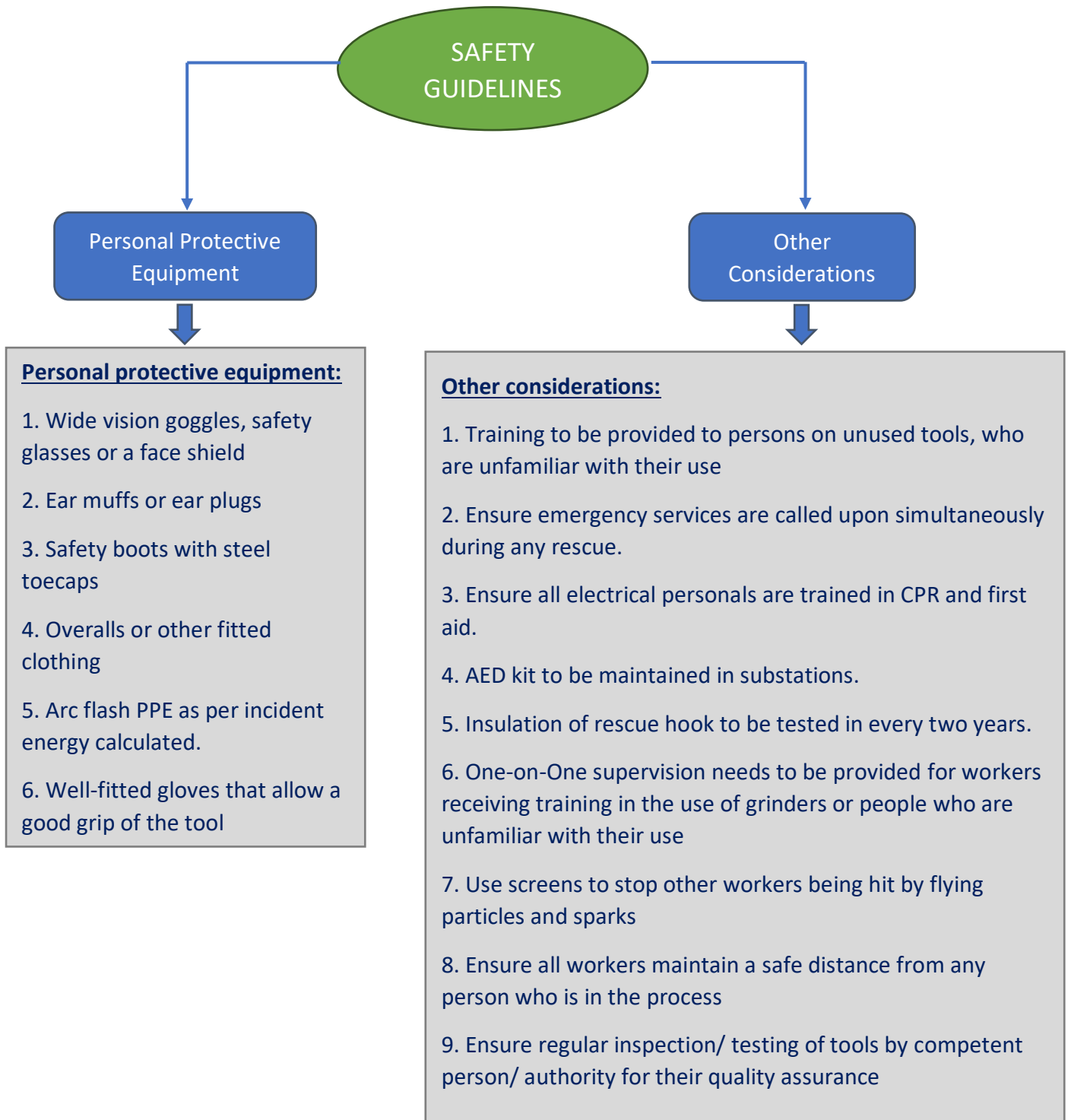
**ANNEXURE 1:-  
Mechanical Hand Tools Checklist**



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**Note:** All the checklist points to be answered "Yes" to certify the machine

## 6.2 ELECTRICAL & INSTRUMENTATION HAND TOOLS:



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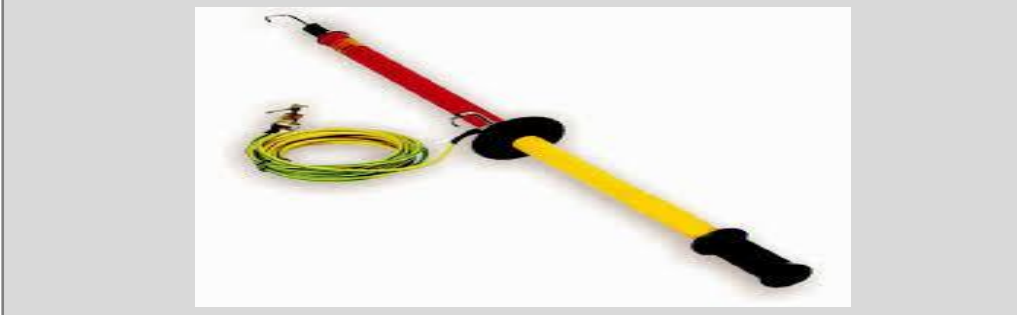
**6.2.1:-**

**EARTH DISCHARGE ROD**

Applicability Area

To discharge static energy during Electrical work

Pictures



Material Code

447805006600-ROD,ERTHG,STATIC DISCHARGE STICK,20817, ROD,EARTHING

Safety Alert

Nil

Risk Control Measures

- Do's:**
- 1.Periodical inspection to be carried out to check the healthiness of discharge rod.
  - 2.Ensure discharge rod is stored away from rescue hook.
  - 3.Standardize the area for storing/placing the discharge rod.
  - 4.place the discharge rod horizontally. Vertical storage may cause falling on person/panels.
  - 5.Ensure that the equipment is stored safely when not in use.
  - 6.TBT to be done for checking supply condition before using discharge rod.
- Don'ts:**
- 1.DO not use damaged discharge rods.
  - 2.DON'T use the discharge rod in live panel/equipment.
  - 3.Do not carry out any modifications in discharge rod. OEM certification is must.
  - 4.Check for loose connections while connecting to earth. Ensure the connections are not loose.
  - 5.Do not store earthing discharge rod near to rescue hook.

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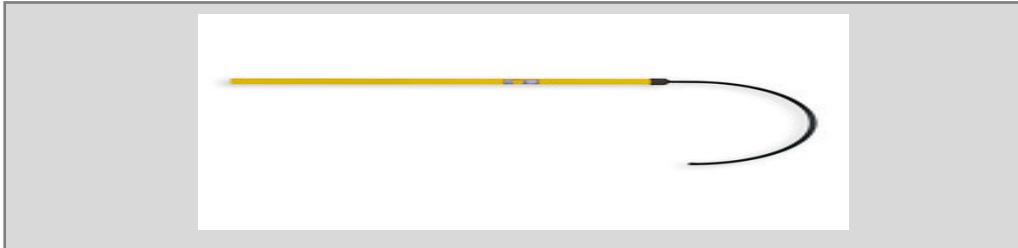
**6.2.2:-**

**RESCUE HOOK**

Applicability Area

To rescue/pull persons who are under electric shock/electrocution

Pictures



Material Code

249901002000-HOOK,INSUL RESCUE,OPENING:18IN,11KV HV,PART NAME: HOOK,INSULATED RESCUE,INVALUABLE TOOL FOR ANY WORKPLACE USED TO WITHDRAW AN INJURED WORKER OUT OF A HAZARDOUS AREA, CONFINED SPACES,IN VAULTS, OR JUST NEAR ELECTRICAL CABINETS AND SWITCH GEAR ARE SOME OF THE PLACES WHERE THIS TOOL IS A MUST FEATURING A FOAM FILLED, FIBERGLASS REINFORCED HANDLE FOR SUPER IOR ELECTRICAL INSULATION AND A COATED HEAT

Safety Alert

Nil

Risk Control Measures

- Do's:**
- 1.Regular periodical inspection of rescue hooks to be carried out for checking any damage.
  - 2.Assign a particular place in substation for fixing of rescue hook.
  - 3.Standardize the rescue hook area, by painting on the area or mentioning the name in paint.
  - 4.Always choose rescue hook (while buying) as per the highest voltage level in the plant/area.
  - 5.Ensure discharge rod is kept away in a separate place, far from rescue hook.
  - 6.Ensure that the equipment is stored safely when not in use.

TYPES

- Don'ts:**
- 1.DON'T place rescue hook in a congested place. Ensure it is free to access during emergency.
  - 2.DO not store rescue hook vertically. Chances of falling hazard may be on person/panel.
  - 3.Do not place discharge rod and rescue hook nearby.
  - 4.Do not use rescue hook if insulation is in damaged condition.

Applicability Area

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Bosch GHG 180 Chhabra - Hot Air Ralliwolf NWB 1.5m 3 / min  
 HEAT GUN, Bosch Attachment Suitable For Blower NWB  
 GHG500-2 Hot Air Blower NWB



To remove moisture in Electrical Panel or  
 For blowing in electrical panels

Pictures

Without Hot Attachment	With Hot Attachment	Heat Gun/ Drier
------------------------	---------------------	-----------------

Material Code

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Any extension cord used with your leaf blower should also be double insulated.
  2. Ensure power is shut off before cleaning or changing attachments.
  3. Be sure to change the air filter regularly in order to prolong the life of unit and keep the air cleaner.
  4. Ensure supply source is provided through 30mA ELCB.
  5. Batteries recommended by OEM only to be used and stored at designated place in case of battery operated tools.
  6. Ensure de-energising while cleaning in electrical panel.
  7. Arc flash PPE's should be used by operator
- Don'ts:**
1. Do not use a blower while on a roof or ladder. If, so ensure you're tied off safely, have secure footing and are not overreaching.
  2. Ensure no rocks and other debris that could become a dangerous projectile in the event they're blown strongly or sucked into the unit.
  3. Never leave blower unattended.

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**6.2.4:-**
**VACCUM CLEANER**

Applicability Area

To remove dust or clean panels/ equipment/ areas

Pictures



Material Code

Kent KSL-612 Vacuum Cleaner ,INALSA MAKE,KARCHER MAKE

Safety Alert

Nil

 Risk Control  
Measures

**Do's:**

1. Most commercial vacuum cleaners are not intended for outdoor use. Store and use them only indoors.
2. When not in use, unplug the vacuum cleaner from the wall outlet. This protects the cord and plug and helps prevent accidents.
3. Ensure that the area that the machine is to be used in is greater than 500mm wide
4. Ensure supply source is provided through 30mA ELCB.

**Don'ts:**

1. Never drop a vacuum cleaner. If a machine is accidentally dropped, have it checked by a certified technician before using it again.
2. Do not clean up toxic or flammable materials with a vacuum cleaner; if you are unsure about what a substance is or if it looks unusual, investigate carefully before vacuuming the area.
3. Do not pick up hard or sharp objects, including glass, nails, screws, coins, etc., with the machine.
4. Do not clean the machine by spraying it with water, detergent, or cleaning solutions



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**6.2.5:-**

**PORTABLE COMPRESSOR**

Applicability Area

To supply air to any equipment or in HEMM Workshop or Auto garage

Pictures



Material Code

IR MAKE Portable Belt Drive Air Compressor or equivalent as per CFM & pressure requirement

Safety Alert

Nil

Risk Control Measures

**Do's:**

- 1.Ensure all connections and couplings are secure, and hold the open end of the hose firmly to avoid uncontrolled "whipping" of the hose
- 2.Use a safety tip on the air nozzle to maintain air pressure below 30 psi should the tip of the air nozzle become blocked or dead-head
- 3.When using an air nozzle for cleaning equipment, removing dust from hard to reach areas on equipment, clearing lines, etc.,
- 4.Ensure that the air pressure exiting the nozzle is 30 psi or less and use effective chip guarding, such as barriers, baffles or screens
- 5.Ensure supply source is provided through 30mA ELCB.

**Don'ts:**

- 1.Never point the nozzle of an air hose at anyone and never use compressed air to clean debris from a person's skin or clothing.
- 2.Never use compressed air to transfer flammable liquids.
- 3.Never yank the cord or the hose to disconnect it from the receptacle.
- 4.Remove all damaged portable electric tools from use and tag them: "Do Not Use."

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**6.2.6:-**

**ELECTRICAL SOLDERING IRON**

Applicability Area

Pictures

Material Code

Safety Alert

Risk Control Measures

To solder or jointing in electronic card or any metallic portion



Anbes Soldering Iron Kit Electronics 60W, Hillgrove Basic Complete 25W Soldering Iron Kit, Visko V1027 30 W Simple (Round Tip)

Nil

- Do's:**
1. Hold wires to be heated with tweezers or clamps.
  2. Keep the cleaning sponge wet during use. Work on a fire-proof or non-flammable surface that is not easily ignited.
  3. Discard lead and silver solder and dross in a container with a lid.
  4. Keep cleaning solvents in dispensing bottle to reduce inhalation hazards.
  5. Ensure supply source is provided through 30mA ELCB.
  6. Prevent damage to electrical cords during soldering.
  7. Keep them away from heated tips.
  8. Turn unit off or unplug it when not in use.
- Don'ts:**
1. Never carry a tool by the cord or hose.
  2. Never touch the element or tip of the soldering iron. They are very hot (about 400°C) and will burn.
  3. Always return the soldering iron to its stand when not in use. Never put it down on your workbench.

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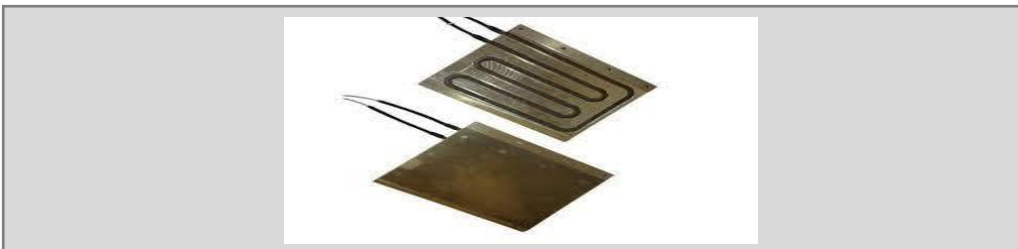
**6.2.7:-**

**ELECTRICAL PLATE HEATER**

Applicability Area

Portable Electric Plate heater for FRP related works

Pictures



Material Code

Anbes Soldering Iron Kit Electronics 60W, Hillgrove Basic Complete 25W Soldering Iron Kit, Visko V1027 30 W Simple (Round Tip)

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Prior to using the heater, the work area must be clear of all hazardous flammable items.
  2. Ensure use of separate temperature gun to crosscheck the temperature.
  3. Ensure the area is clean of any debris to prevent any slip/trip hazard.
  4. Use leather hand gloves while handling hot surfaces.
  5. Ensure supply source is provided through 30mA ELCB.
  6. Ensure that the equipment is stored safely when not in use.
- Don'ts:**
1. DON'T leave the machine un-attended after turning it on.
  2. DON'T use the cord for carrying, pulling or unplugging
  3. Do not touch the heater after turning on. Use temperature gun for checking the temperature.
  4. Never overheat. Heat only until recommended temperature as per OEM.
  5. Do not use the heater for other purposes other than the specific job application.
  6. Do not adjust the parts of the machine when the machine is ON.

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**6.2.8:-**

**BEARING INDUCTION HEATER**

Applicability Area

For induction heating bearings to easily fit in motor/driven machine

Pictures



Material Code

SKF small induction heater TIH 030m, SKF large induction heater TIH 220m, Pooja International Make UIH2000 or UIH2001 etc.

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Prior to using this machine the work area must be clear of all hazardous obstructions.
  2. Ensure use of separate temperature gun to crosscheck the bearing temperature.
  3. Ensure the area is clean of any debris to prevent any slip/trip hazard.
  4. Use leather hand gloves while handling hot bearings.
  5. Ensure supply source is provided through 30mA ELCB.
  6. Ensure that the equipment is stored safely when not in use
- Don'ts:**
1. DON'T leave the machine un-attended after turning it on.
  2. DON'T use the cord for carrying, pulling or unplugging
  3. Do not touch the bearing after turning on the machine. Use temperature gun.
  4. Never overheat the bearing. Heat only until recommended temperature as per OEM.
  5. Do not remove the bearing while the machine is on.
  6. Do not adjust the parts of the machine when the machine is on. 6. Do not adjust the parts of the machine when the machine is ON.

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**6.2.9:-**

**WELDING ELECTRODE BAKING OVEN**

Applicability Area

To remove moisture from welding rods

Pictures



Material Code

Reputed vendors- Portable Welding Electrode Drying Oven make Supertech

Safety Alert

Nil

Risk Control Measures

- Do's:**
- 1.Keep your head out of fumes.
  - 2.Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as blades, bits, and cutters.
  - 3.Keep flammable materials away
  4. Insulate yourself from work and ground.
  - 5.Ensure supply source is provided through 30mA ELCB.
- Don'ts:**
- 1.Do not touch electrically live parts or electrode with skin or wet clothing.
  - 2.Keep all people not involved with the work at a safe distance from the work area.
  - 3.Do not wind the cord around body of the hot oven as it still hot.
  - 4.Never yank the cord or the hose to disconnect it from the receptacle

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**6.2.10:-**

**ELECTRICAL HAND BLENDER/ MIXER**

Applicability Area

For blending/mixing of liquids

Pictures



Material Code

Any reputed make like Bosch, Philips

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Always carry out a 'pre-use' check
    - o Ensure you have the correct machine for the application
    - o Ensure protective devices are in line
    - o Report any defects promptly
  2. Ensure use of blender in liquids as per OEM manual
  3. Keep work area clean and free of obstructions and hazards.
  4. Ensure supply source is provided through 30mA ELCB.
  5. Check that the power lead does not create a trip hazard and that it is well clear of the workpiece.
- Don'ts:**
1. Do not use the blender near sharp edges. Chances of blender blade damage.
  2. Do not use blender on liquids which are not compatible to work. Check OEM manual.
  3. Do not use without any protection/slippage guards.
  4. Do not use blender if there is a damage in blender or cable.
  5. Do not connect to power source until all adjustments have been made in blender.

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**6.2.11:-**

**HYDRAULIC CRIMPING MACHINE**

Applicability Area

To crimp lugs in cables using hydraulic lug crimping machine

Pictures



Material Code

Dowell's make SYT-102 Hand Tool, 50 - 400 mm, Jainson Make Tejas 630

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Check for any oil leakages before using.
  2. Prior to using this machine the work area must be clear of all obstructions.
  3. DO choose the right size crimp die as per cable size.
  4. Use hand gloves for proper gripping of cable and crimping machine.
  5. Do choose right type of crimping machine as per size of cable and space available.
  6. Ensure that the equipment is stored safely when not in use
  7. Start crimping of lug from connection side to cable side.
- Don'ts:**
1. DON'T operate if any oil leakages are observed in the machine.
  2. DON'T place the hand near the crimp die while crimping.
  3. Do not adjust the die when the pressure is built up. Release the pressure, before any adjustments.
  4. Never operate machine for long periods. Operator fatigue may cause slipping of crimping while pressing.
  5. Never place hands or other body parts near moving parts.

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**ANNEXURE 2-**

**Electrical & Inst. Hand Tools Checklist**

**CHECKLIST**

- 1 Is tool description clearly identified & numbered ?
- 2 Is tool stored in good & safe condition ?
- 3 Is Physical condition of tool & its parts in good condition i.e. no damage ?
- 4 Is tool in good operating condition ?
- 5 Is tool along with its properties tested & certified for use ?
- 6 Is Line of fire clearly visible & do you along with team working in line of fire ?
- 7 Is power cable without any joints along with gland available to prevent cable from pulling ?
- 8 Do you ensure that you have all required PPE before starting job ?
- 9 Is Earth connection given ? (Not required for Machine is double insulated).
- 10 Is Three pin-plug provided ?
- 11 Is dead man switch/ lock switch/ trigger switch/ emergency switch in working condition ?
- 12 Is battery used in the battery operated tool is recommended by OEM
- 13 Is battery inserted properly as per OEM guidelines



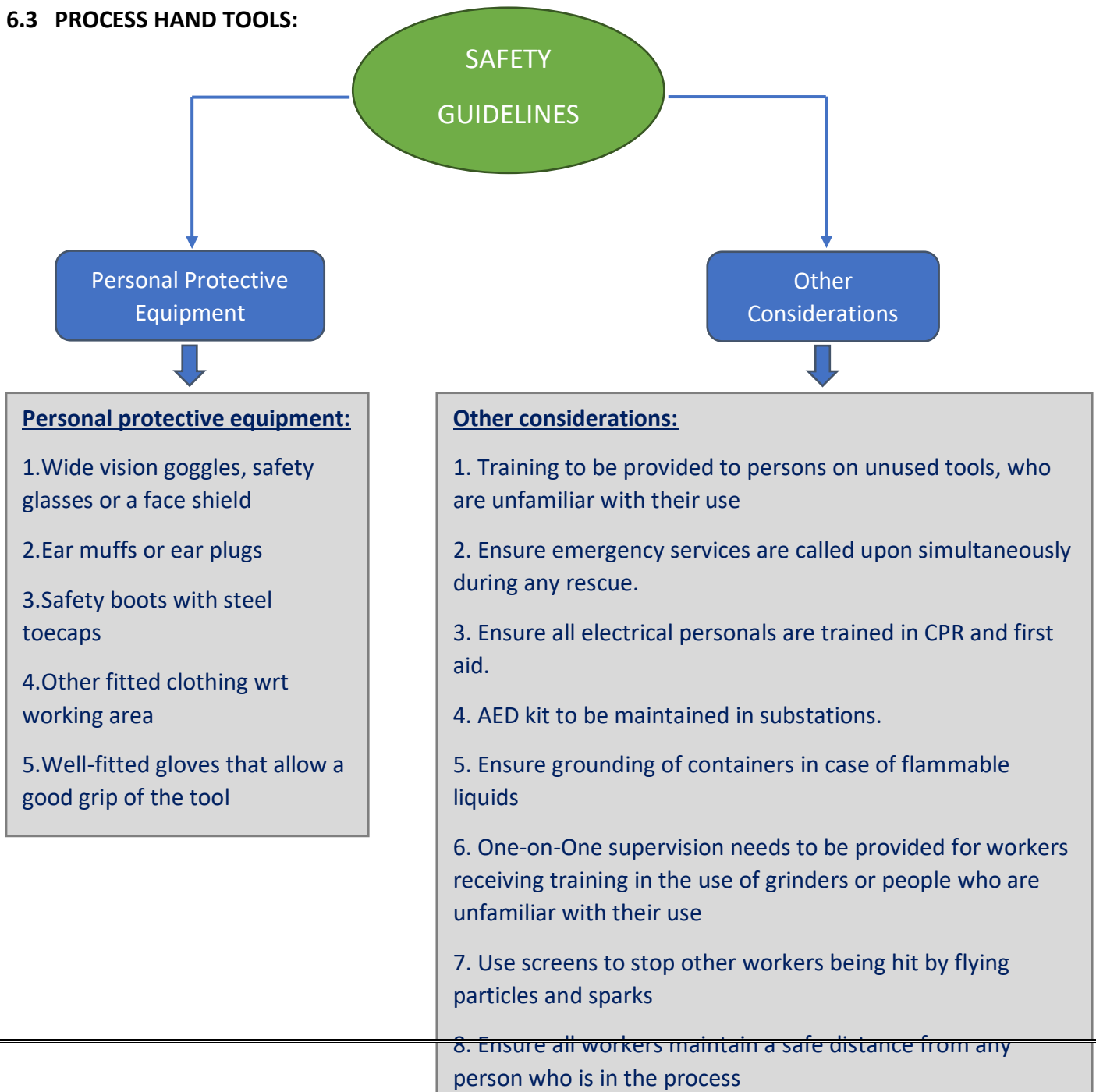
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**Note:**

- Audit for certification of the electrical and Instt tools to be conducted at every 3 Months by internal team as per the checklist. Same applicable for battery operated tools.
- All the checklist points to be answered "**Yes**" to certify the machine.
- External audit to be planned in the next revision post approval from chairman.
- Periodic ammendment can be done at the discretion of Chairman of Handtool standard in case any major gaps are identified or any new tools are introduced in the system.

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**6.3 PROCESS HAND TOOLS:**



**SAFETY  
GUIDELINES**

**Personal Protective  
Equipment**

**Other  
Considerations**

- Personal protective equipment:**
1. Wide vision goggles, safety glasses or a face shield
  2. Ear muffs or ear plugs
  3. Safety boots with steel toecaps
  4. Other fitted clothing wrt working area
  5. Well-fitted gloves that allow a good grip of the tool

- Other considerations:**
1. Training to be provided to persons on unused tools, who are unfamiliar with their use
  2. Ensure emergency services are called upon simultaneously during any rescue.
  3. Ensure all electrical personals are trained in CPR and first aid.
  4. AED kit to be maintained in substations.
  5. Ensure grounding of containers in case of flammable liquids
  6. One-on-One supervision needs to be provided for workers receiving training in the use of grinders or people who are unfamiliar with their use
  7. Use screens to stop other workers being hit by flying particles and sparks
  8. Ensure all workers maintain a safe distance from any person who is in the process

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**6.3.1:-**

**MUD GUN**

Applicability Area

For drilling ,digging, breaking lumps/boulders , remove choking etc.

Pictures



Material Code

Safety Alert

Nil

Risk Control Measures

- Do's:**
- 1.Ensure usage of mandatory PPEs like balaclava
  - 2.Maintaining Runner depth
  - 3.Development & adherence to SOP (Safe Operating Procedure)
  - 4.Timely closing of Tap holes after blow
  - 5.Regular inspection & checking of Mud gun machines
  - 6.Development & adherence to SOP
  - 7.Ensure Dust and fume collectors ESP /Bag filter system is effective and running
  - 8.Provision of covers on hot metal and slag runners

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**6.3.2:-**

**IMPACT WRENCH(Cordless/Corded)**

Applicability Area

For tightening & loosening of fasteners

Pictures



Material Code

Indian Standard: IS 8067-1986

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Use proper socket as per the size of fasteners
  2. Use the right tool for the job, and the right tool for the user.
  3. Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as sockets etc.
  4. Use two or three-finger triggers for power tools. Use four-finger triggers only when the tool is balanced.
  5. Batteries recommended by OEM only to be used and stored at designated place in case of battery operated tools.
  6. Keep work area clean and free of obstructions and hazardous
  7. Wear correct PPE – Goggles, hearing protection, hand gloves, face shield etc.
  8. Ensure to fix air hose pipe & secure with locking with impact wrench

**Don'ts:**

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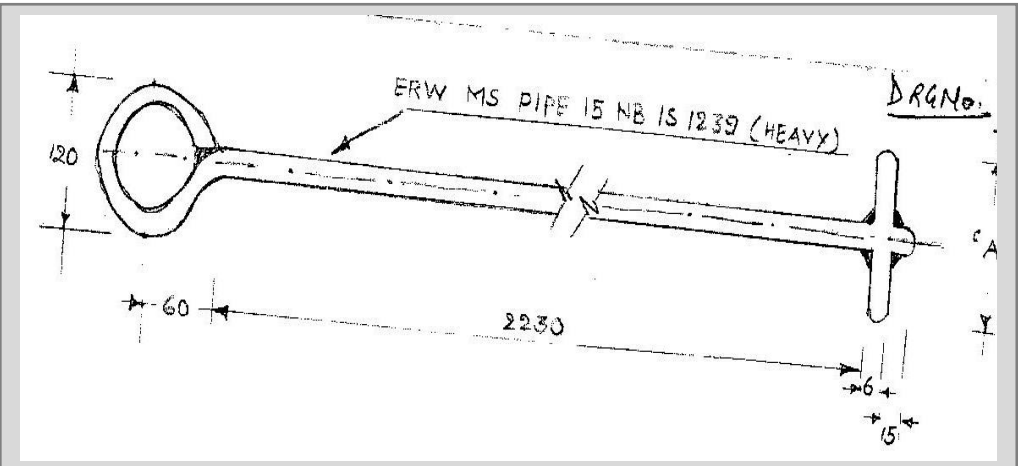
**6.3.3:-**

**DOLLY BAR**

Applicability Area

For Tap hole plugging

Pictures



Material Code

675177961100

Safety Alert

Nil

- Do's:**
- 1.Should be single handed.
  - 2.Use the tool for the specific job only .
  3. Only skilful operator should handle the dolly-stick for plugging the tap hole..
  4. Safe distance to be maintained while operating it in hot molten metal bath.
  5. Hammer to be used at tail end to fix it properly.
  - 6..Keep work area clean and free of obstructions.
  7. Use good quality clay cone at its end .
  - 7.Wear correct PPE – Goggles, hearing protection, hand gloves, face shield,Balaclava,fire retardant clothes etc.

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Risk Control Measures

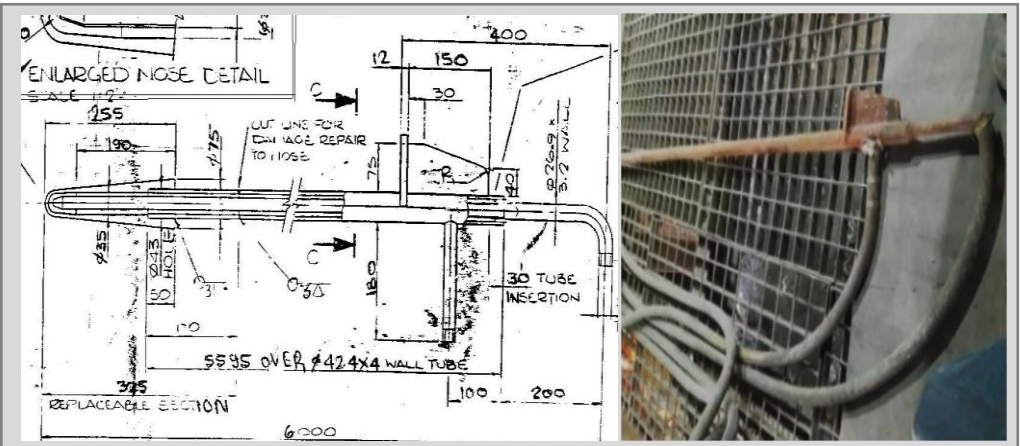
6.3.4:-

**RESTRICTOR BAR**

Applicability Area

For Tap hole plugging

Pictures



Material Code

675170597000

Safety Alert

Nil

Risk Control Measures

- Do's:**
- 1.Should be single handed.
  - 2.Use the tool for the specific job only .
  - 3.Only skilful operator should handle the dolly-stick for plugging the tap hole..
  4. Safe distance to be maintained while operating it in hot molten metal bath.
  5. Hammer to be used at tail end to fix it properly.
  - 6..Keep work area clean and free of obstructions.
  7. Ensure water cooling is proper.
  - 7.Wear correct PPE – Goggles, hearing protection, hand gloves, face shield,Balaclava,fire retardant clothes etc.

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**6.3.5:-**

**BATTERY POWERED STRAPPER**

Applicability Area

For strapping of bundles & blocks

Pictures



Material Code

Nil

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Ensure prechecks as per user guide before using strapping tool.
  2. Do check all safety switches & guards in healthy condition.
  3. Always position yourself to one side while tensioning strap.
  4. Always use new straps for strapping.
  5. Batteries recommended by OEM only to be used and stored at designated place in case of battery operated machine.
  6. Battery to be inserted in the machine as per the OEM guidelines.
  7. keep your hands & fingers away from strap while tensioning the strap.

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**6.3.6:-**

**TUYER POCKING ROD**

Applicability Area

Pictures

Material Code

Safety Alert

Risk Control Measures

For Furnace Tuyers poking



675177961100..TUYERS POCKING BAR, SPL TOOLS, G9-004 M12

Nil

- Do's:**
1. Use the tool for the specific job only .
  2. Only skilful tapper should handle the poking rod for clearing the choking in Tuyers.
  3. Safe distance to be maintained while operating it in hot Tuyers.
  - 4..Keep work area clean and free of obstructions to avoid any slip/fall.
  5. Wear correct PPE – Goggles, hearing protection, hand gloves, face shield, Balaclava, fire retardant clothes while doing poking of Tuyers.
- Don'ts:**
1. Don't use the overlength poking rod ,avoid more than 4m
  2. Don't use if slide gates of the Tuyers are open as the blast may come from that Tuyers..

3. Reduce excessive gripping force or pressure.



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**6.3.7:-**

**CROW BAR**

Applicability Area

To open nailed wooden crates or pry apart boards/ remove break the boulders

Pictures



Material Code

Indian Standard: IS 704 - 1984

Safety Alert

Nil

Risk Control Measures

**Do's:**

- 1.The crowbar should have a point or toe of such shape that will grip the object to be moved.
- 2.The crowbar should have a heel to act as a pivot or fulcrum.
- 3.Ensure pre checks before using the tools.
- 4.Secure the object to be removed or demolished, if excessive force is applied you could end up throwing the object through the air and hitting yourself or others.
- 5.See if there are any breakables or nails attached before you lever an object apart. Flying glass and boards with nails can cut you and result in injury to others.
- 6.Always pry with the bar away from yourself.
- 7.Make sure the area is clear so that if you are prying apart something that can fall or fly through the air you won't hurt other people.

**Don'ts:**

1. Do not leave crowbars lying on shon floors or work areas; they may cause a

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**6.3.8:-**

**EXPLODER**

Applicability Area

Pictures

Material Code

Safety Alert

Risk Control Measures

For blasting operations in mines



Indian Standard: IS: 9836-1981 (Circuit tester: IS:9836-1981 Appendix I), DGMS

Nil

- Do's:**
1. Check the Instrument by inserting the key and turning it clockwise for the condition of the battery. "L" indicates low battery and dot (n) indicates that the Exploder is "ON". Switch off the exploder.
  3. Keep the exploder in dry place.
  4. Remove Blasting cable leads from the terminal of exploders before entering the blast face area.
  5. Always keep the exploder key with the person authorized to do so.
  6. Always check continuity of firing circuit before firing exploder with ohm meter. Testing current should not exceed 50mA.
  7. Sufficient warning like display of red flag, warning sirens shall be given to public before blasting. Also display blasting time.

**Don'ts:-**

1. Under no condition the exploders should be opened for overhaul / repairs /

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**6.3.9:-**

**STEMMING PLUG & STICK**

Applicability Area

For plugging explosives in UG mines

Pictures



Material Code

Nil

Safety Alert

Nil

- Do's:**
- 1.Ensure only trained person to be allowed for stemming the explosive holes.
  - 2.Stemming stick to be checked for any cracks or joints.
  - 3.Ensure to plug and stemming standing a side outside line of fire.
  - 4.Always ensure to wear all necessary PPEs while stemming.
  - 5.Always provide barricading near area where explosive holes are stemmed.
  - 6 Always check blast holes before stemming for any obstruction

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Risk Control Measures

**6.3.10:-**

**CRUCIBLE TONGS**

Applicability Area

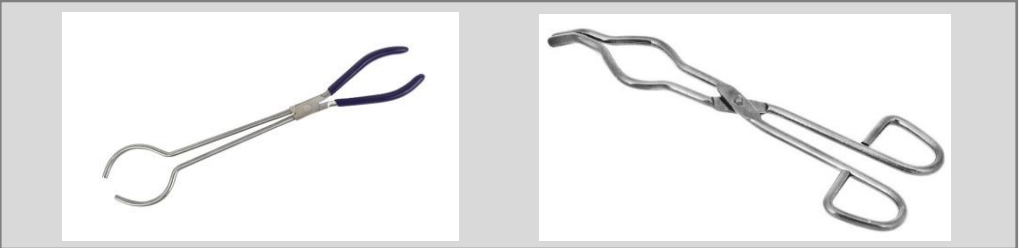
Pictures

Material Code

Safety Alert

Risk Control Measures

For plugging explosives in UG mines



Nil

Nil

- Do's:**
- 1.Ensure tips of the tongs should be dry & clean before handling crucible.
  - 2.Use insulated handle tongs for handling hot crucibles.
  - 3.Ensure to wear proper PPEs like hand gloves ( heat resistant for hot crucible ) , Mask, Safety goggles while handling crucibles with tongs.
  - 4.Ensure the crucible or beaker is not fully filled with sample.
  - 5.Check for any crack or bolts condition before using the tong.
- Don'ts:**
- 1.Never Hold red hot crucible with tong.
  - 2.Never Place crucible directly on desk, it should be placed on proper insulated mat.

3.Never hold completely filled crucible, since it may splash during moving and holding.

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**6.3.11:-**

**SEAL CUTTER**

Applicability Area

For cutting seals

Pictures



Material Code

Nil

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Always wear Eye protection.
  2. Wear the RIGHT SAFETY EQUIPMENT for the job.
  3. Use tools that are the RIGHT SIZE & RIGHT TYPE for your job.
  4. Follow the correct procedure for using EVERY tool.
  5. Keep your cutting tools SHARP and in good condition.
  6. Handle SHARP-EDGED and POINTED TOOLS with care.
  7. Always carry pointed tools by your side with the points and heavy ends DOWN.
  8. SECURE all small work & short work with a vise or clamp.
  9. AFTER USING A TOOL — clean it and return it to its proper storage place.
  10. If anything breaks or malfunctions — report it to your supervisor AT ONCE

**Don'ts:**

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**6.3.12:-**

**WATER JEETTING MACHINE**

Applicability Area

For cleaning , clearing choking etc

Pictures



Material Code

Indian Standard: IS 11387

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. When starting to jet, one operative should start up the unit while another holds the jetting gun with the nozzle facing the floor.
  2. If there is only one operative, the jetting gun should be placed at a safe distance with the nozzle facing away from the unit and operative, or in the jetting gun holster if one is available.
  3. Carry out the cleaning operation in full PPE in the enclosed area.
  4. Always use two hands when carrying out operations.
- Don'ts:-**

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**6.3.13:-**

**PNEUMATIC JACK**

Applicability Area

To lift any heavy object/machine

Pictures



Material Code

Indian Standard: IS 11387

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Always use the Pneumatic jack on level and flat surface.
  2. Prior to using this machine the work area must be clear of all hazardous obstructions.
  3. DO choose the right size pneumatic jack as per application/job.
  4. Check for any air leakages.
  5. Ensure pneumatic jack is fixed at centre of job.
  6. Ensure that the equipment is stored safely when not in use
- Don'ts:**
1. DO not use a undersized jack for large application. Cross check with OEM manual when in doubt.
  2. Do not store pneumatic jack near sharp edged tools. Chances of damaging hose.
  3. Do not work under lifted job. Ensure manual blocking separately in un-

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**6.3.14:-**
**SKIMMING TOOL**

TYPES


Applicability Area

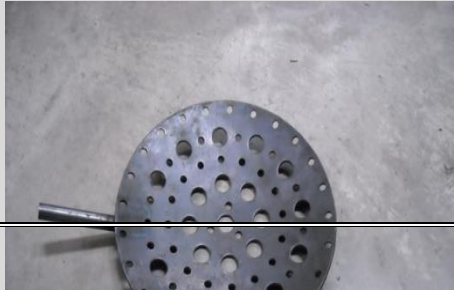
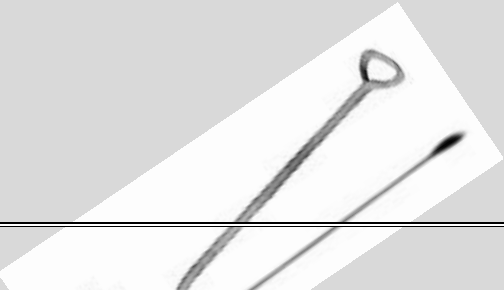
Pictures

Material Code

TYPES

Applicability Area

<b>Laundry skimmer</b>	<b>SOW skimmers</b>
For skimming molten metal	For skimming sow moulds
	
Nil	Nil

<b>Staggered skimmer</b>	<b>Deep Dish Skimmer</b>
For skimming molten metal	For skimming deep moulds
	



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Pictures

Material Code

Safety Alert

Nil

Risk Control  
Measures

**Do's:**

- 1.Ensure only trained person to be allowed for stemming the explosive holes.
2. Skimming to be checked for any cracks, welded joints or looseness.
- 3.Ensure to do skimming standing a side outside line of fire.
- 4.Always ensure to wear all necessary PPEs related to Hot metal handling while skimming.
- 5.Ensure skimmer is clean and dry for use.
6. Maintain frequent breaks while skimming to reduce heat stress.

**Don'ts:**

- 1.Do not leave Skimmers stick on floors or work areas; they may cause a tripping hazard.
2. Do not hold skimming with one hand.
3. Do not Allow any person in nearby while stemming.
- 4.Do not allow any unauthorised person to do skimming.
5. Avoid low level ingot skimming as it may result in sickness.

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**6.3.15:-**

**GRIT/ SLAG BLASTING MACHINE**

Applicability Area

For slag jet blasting for cleaning

Pictures



Material Code

Indian Standard: IS 1477 ( Part 1):1971 Appendix-A&B ; IS 5894:2005; ISO 3861:1995

Safety Alert

Nil

Risk Control Measures

- Dos:-**
1. When starting to jet, one operative should start up the unit while another holds the Blasting gun with the nozzle facing the object.
  - 2.Ensure proper exhaust ventilation system where grit blasting is done.
  - 3.Proper respiration & full body covering safety PPEs to be wear while doing sand / grit blasting.
  - 4.Ensure safe distance from where hose is to be hold to prevent from rebounded particles.
  - 5 In order to prevent blocking of the nozzle by the abrasive, the abrasive used shall generally be not larger than one-third the diameter of the nozzle.
  - 6.Always hold the hose pipe with proper grip & both hands.

- Don'ts:-**
1. Don't point the Hose at anyone at any time.

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**6.3.16:-**
**VALVE WRENCH**

TYPES

Applicability Area

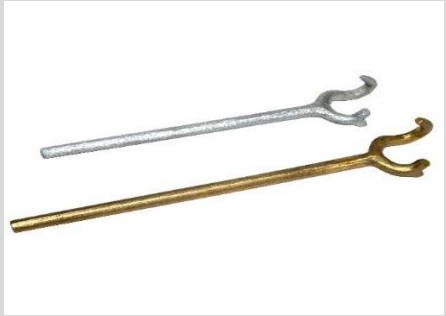

Pictures



Material Code

TYPES

Applicability Area

Pictures

CLAW TYPE	SUPER CLAW TYPE
Allow 1.3/8 X 1 (inch) in opening, used for fastening purpose and available in 21.3/8 (inch) length.	Heavy duty opening like 225, 250, 300, 350, 400, 450, 500. Wrench is available in wide range of lengths such as 1/2-1, 1-3, 3-4, 6-8, 10-14, 16-20 and 22-24 for varied valve size
	
Nil	Nil

Single Open Wheel Type	Double Open Wheel Type
allows a generous of 1, 1.3/8 and 2 degree turning radius on the ratchet and helps for working in tight areas. Available in 15, 15.1/2 and 27 lengths	made of ductile iron wrenches are safer and easier to use because the head design provides a better grip
	
Nil	Nil

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Material Code

TYPES

Applicability Area



Pictures


Material Code

TYPES

Applicability Area

Pictures

<b>Surgrip Single Open Type</b>	<b>Surgrip Double Open Type</b>
This wrench provides maximum opening sizes like 1, 1.5/16 and 2 for easy operation	Available in 8, 10, 15 and 22 lengths (inch), this wrench is used for opening the stubborn valve easily
	
Nil	Nil

<b>F TYPE</b>
Opening and closing valves easily without slippage when working in overhead or crowded position

Nil

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Material Code

Safety Alert

Nil

Risk Control  
Measures

**Do's:**

1. Use the correct wrench as per the valve type & size to avoid slip & uncomfortable which may result into injury
2. Discard any damaged wrenches (e.g., open-ended wrenches with spread jaws or box wrenches with broken or damaged points).
4. Wear safety glasses or a face shield (with safety glasses or goggles) where there is a hazard of flying particles or falling debris.
5. Position your body in a way that will prevent you from losing balance and hurting yourself if the wrench slips or something (e.g., a bolt) suddenly breaks.
6. Use a wrench with proper handling grip to avoid slippage during turning valve.
7. Ensure that the jaw of an open ended wrench is in full contact (fully seated, "flat", not tilted) with the valve.
8. When turning valve with a wrench, the direction of force should be away from the person turning the valve.
9. Ensure that the jaw of wrench are clean and free of oil and debris and that the valve wheel is clean to prevent unexpected slippage and possible injuries.
10. Apply a small amount of pressure to a r wrench initially to ensure that the jaw or claw is engaged with the pawl wheel for the direction you are applying pressure.
11. Stand aside when work is done with wrenches overhead.
13. Always clean and place tools and wrenches in a tool box, rack or tool belt after use.

**Don'ts:**

2. Do not use a wrench that is bent handle or damaged.
3. Do not use worn adjustable wrenches. Inspect the knurl, jaw, and pin for wear.
4. Do not pull on an adjustable wrench that is loosely adjusted.
5. Do not use valve wrenches on any other equipment.
6. Do not use a wrench on auto motorised MOV without isolation.
7. Never use welded or non-standard F Rods instead of a wrench for opening valve.
8. Do not use a make-shift wrench
9. Do not insert a shim in a wrench for a better fit.

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**6.3.17:-**

**PNEUMATIC DRILL MACHINE**

- Applicability Area
- Pictures
- Material Code
- Safety Alert
- Safety Alert Description
- Safety Alert Recommendation
- Risk Control Measures

For drilling in process area & construction jobs



Indian Standard: IS 5441 : 1986

**IM/20162017/681-HIPO**

On 07.09.2016 at about 10.00 AM, A Crew of two people was deployed for the cable dressing job near the diesel pump area. The person was using the Electric operated hand drill for the floor chipping work to grout the tray support by mason work. During the inspection it was found that No hot work permit was taken be the initiator.

- 1-Awareness training sessions to workers who will work near this area.
- 2.Sign board is to be display at this area as USE OF ELECTRICALLY OPERATED MACHINES ARE PROHIBITTED.

- Do's:**
- 1.Ensure guarding & drill bit is wrt material being drilled
  - 2.Ensure any emergency stop devices operate & report any defects promptly
  - 3.Keep work area clean and free of obstructions and hazardous
  - 4.Wear correct PPE- Goggles, hearing protection, hand gloves, face shield
  - 5.Ensure to fix air hose pipe & secure with locking before drill
- Don'ts:**
- 1.Don't operate on materials that is not ferrous & rusty surfaces
  - 2.Don't carry drill by holding hose pipe as it's unstable & steel as it's very hot

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**6.3.18:-**

**EOT OPERATED- LIFTING DROSSING SKIP**

Applicability Area

For refineries for dross handling

Pictures



Material Code

566300000400

Safety Alert

Safety Alert  
Description

**IM/20182019/1275-Fatality**

IP came on duty as per schedule in A shift on dated 31.08.2018 in Lead Refinery Plant. IP reported in control room and came to site for routine job. Total 05 persons reported at Copper Drossing area for handling and refining of hot liquid metal received from ISF as well as Ausmelt area. There were 02 permanent Workman and 03 were contractor employees. 2 persons were carrying out the job of molten metal handling & treatment where as other 2 (including IP) were carrying out other miscellaneous job

Safety Alert  
Recommendation

- 1.Operation of crane to be done by authorized personnel only
- 2.Line of fire must be familiar to all persons and shall be followed
3. Two skips must be kept @ marked place i.e. having sufficient space wrt each other.
4. Visual line of fire marking must be available & authorized crane operator shall always operate from out of line of fire.
5. Hot metal handling FSIPP must be established & made effective @ ground floor.
6. Crane remote lock must be provided for authorized usage only
- 7.Risk & it's mitigation regarding job must be explained to every person of unit.
8. Job related PPEs to be ensured

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Risk Control Measures

**Do's:**

- 1.Ensure there is enough space between the dross kips.
- 2.Use the tool for the specific job only .
3. Only skilful operator should handle the hot dross skips
4. Safe distance to be maintained while operating it in hot dross skips
5. Avoid pendent and use only remote operated crane.
- 6..Keep work area clean and free of obstructions.
7. Physically check the crane hoist for any kinks, cuts etc
- 8..Wear correct PPE – Goggles, hearing protection, hand gloves, face shield,Balaclava,fire retardant clothes etc.
- 9.Ensure the trunnions in the skips are properly fixed and not wearied .
10. Ensure the slings/chains used are standard for lifting or shifting the hot dross skip

**Don'ts:**

- 1.Never lift the hot dross skip after immediate Dressing.
- 2.Don't overfill the dross skip.
- 3.Avoid swinging of the dross skip while lifting &shifting.
- 4.Keep all people not involved with the work at a safe distance from the work area.
5. Don't use heavy deposited bumper's for metal baths and remove the accretion first by burners
- 6.Avoid any ingress of moisture as it may result in blast.

**MANUAL OPERATED- TILTING DROSSING SKIP**

For refineries for dross handling



Applicability Area



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Pictures

Material Code

566300000400

Safety Alert

Safety Alert  
Description

Safety Alert  
Recommendation

**Do's:**

- 1.Ensure the dross tilting skips is properly hooked up .
- 2.Ensure double locking system in place.
3. Ensure the skip is not paced near the area where ingress of water is possible.

- 4 Ensure the hot dross kins is being operated by skilful fork lift driver

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Risk Control Measures

**6.3.20:-**

**EOT OPERATED- HOT METAL LADLE**

- Applicability Area
- Pictures
- Material Code
- Safety Alert

For Metal handling across smelters



566300000400

**IM/Zone-2/202021/018-FAC**

The FAC incident happened at 8:00 PM (11th May'20) at ISF Slagging floor with below details : While slagging ,there was some water spread in 2nd ladle pit due to granulation launder jamming. 2nd empty ladle was taken out to remove

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Safety Alert  
Description

Safety Alert  
Recommendation

Risk Control  
Measures

**Do's:**

- 1.Ensure there is enough space between the dross skips.
- 2.Use the tool for the specific job only .
3. Only skilful operator should handle the hot dross skips
4. Safe distance to be maintained while operating it in hot dross skips
5. Avoid pendent and use only remote operated crane.
- 6..Keep work area clean and free of obstructions.
7. Physically check the crane hoist for any kinks, cuts etc
- 8..Wear correct PPE – Goggles, hearing protection, hand gloves, face shield,Balaclava,fire retardant clothes etc.
- 9.Ensure the trunnions in the skips are properly fixed and not wearied .
10. Ensure the slings/chains used are standard for lifting or shifting the hot dross skip

**Don'ts:**

- 1.Never lift the hot dross skip after immediate Dressing.
- 2.Don't overfill the dross skip.
- 3.Avoid swinging of the dross skip while lifting &shifting.
- 4.Keep all people not involved with the work at a safe distance from the work

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**6.3.21:-**

**FLOOR CLEANING MACHINE**

Applicability Area

Pictures

Material Code

Safety Alert

To clean floors in Office area, Shift rooms and Plain cemented surface



Auto Scrubber Dryer Machine-Make New age cleaning services

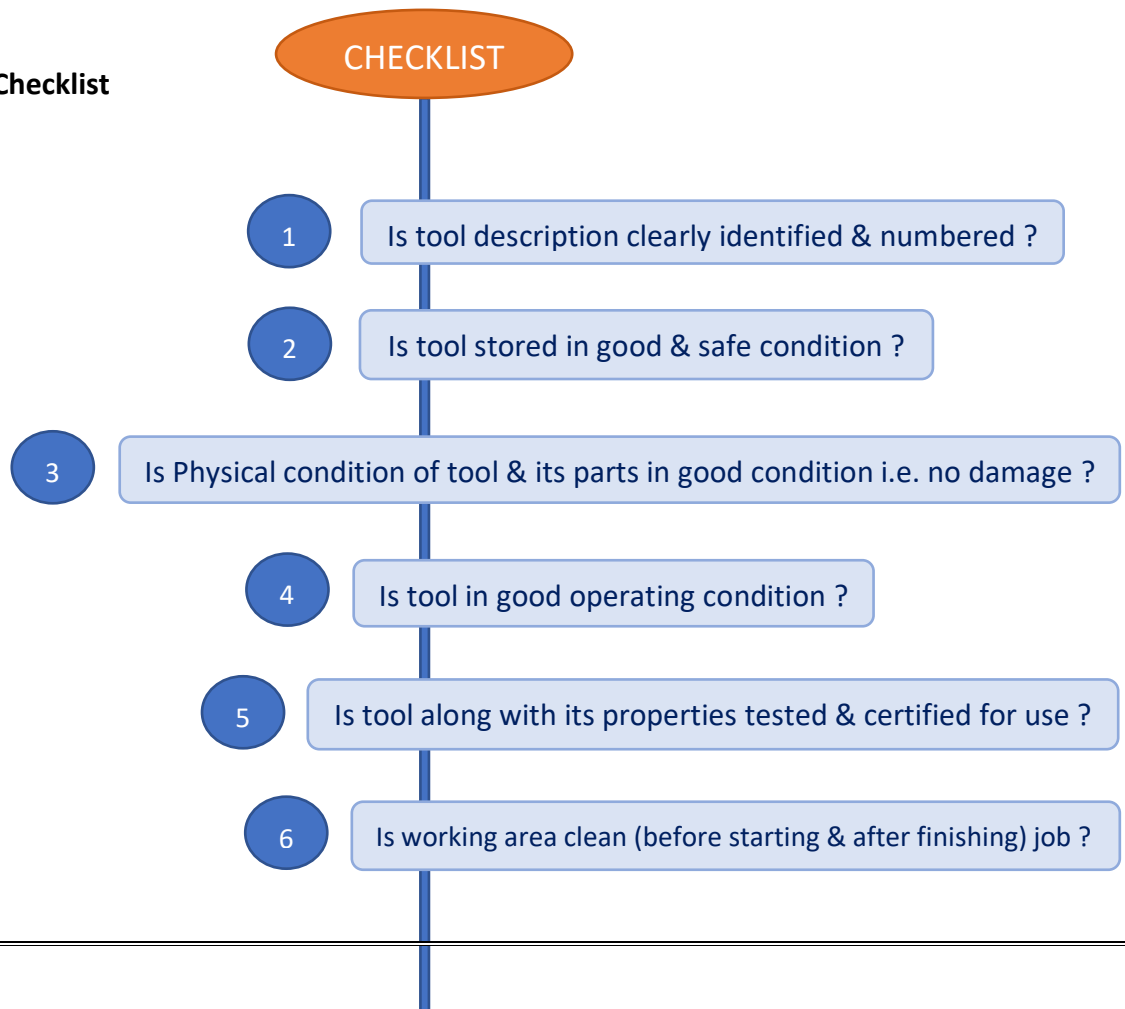
Nil

- Do's:**
- 1.Always run this machine flat and level and transport in the upright position. Never lay machine on its side.
  - 2.Prior to using this machine the work area must be clear of all hazardous obstructions.
  - 3.DO choose the right machine for right application. Refer OEM manual for checking working environments.

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Risk Control  
Measures

**ANNEXURE 3:-  
Process Hand Tools Checklist**



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7 Is Line of fire clearly visible & do you along with team working in line of fire ?

8 Do you ensure that you have all required PPE before starting job ?

9 Is Earth connection given ? (Not required for Machine is double insulated).

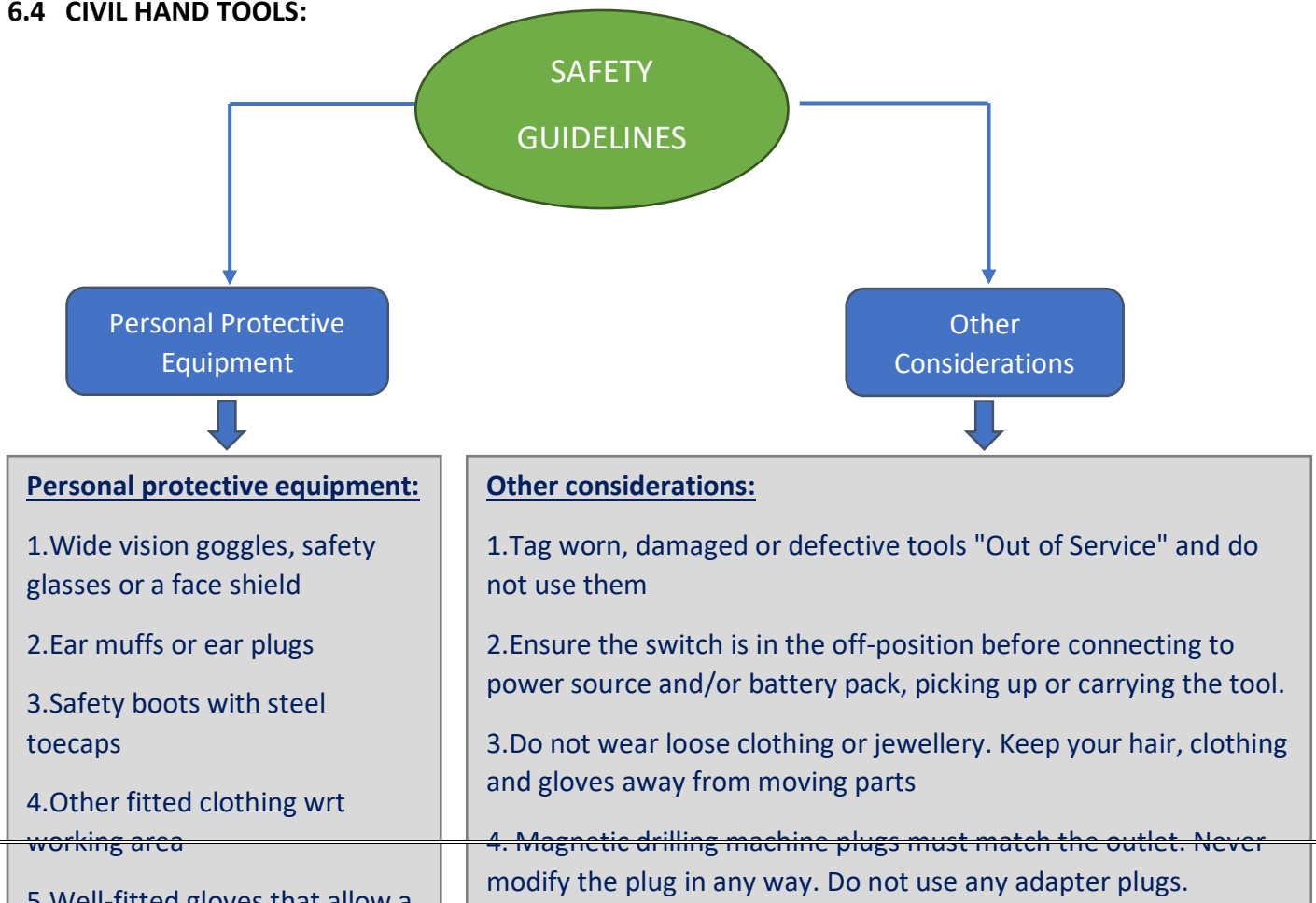
10 Is Three pin-plug provided ?

11 Is dead man switch/ lock switch/ trigger switch/ emergency switch in working condition ?

Others (If any) !

**Note:** All the checklist points to be answered "Yes" to certify the machine

**6.4 CIVIL HAND TOOLS:**



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**6.4.1:-**




**JACK HAMMER**

TYPES

Applicability Area

Pictures

Material Code

PNEUMATIC	ELECTRICAL	
For drilling ,digging, breaking lumps/boulders , remove choking etc.	For demolition of concrete	For chipping concrete or bricks
		
Nil	Indian Standard: IS: 3559-1966	

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Safety Alert

Safety Alert Description

Safety Alert Recommendation

Risk Control Measures

TYPES

Applicability Area

**IM/Zone-1/201920/284- LTI**

After cleaning of slag launder with help of jack hammer IP kept it inside hygiene chamber vertical position. IP was cleaning slag launder surrounding accretion with help of cleaning tool. This cleaning tool hit jackhammer and it fell down over IP right leg. IP leg observed swelling , Immediately send him HZL hospital for further checks.

- 1.Hira register to be update to mitigate the hazard
- 2.Jack hammer safe handling to be incorporated in launder cleaning SOP & training to be given for the concerned persons
- 3.Designated location and fixing arrangement to be done for Jack hammer storage
- 4.Cleaning activity to be carried after removal of jack hammer from the room to be ensured
- 5.Jack hammer hanging arrangement to be explored to eliminate the jack hammer falling
- 6.Wheel /trolley based jack hammer usage possibility to be explored
- 7.Light weight jack hammer/breaking tool for slag cleaning to be explored

3.DO choose the right chipper type

- 4.Use vibration-damping gloves when using the chipper machine
- 5.Ensure supply source is provided through 30mA ELCB.
- 6.Ensure that the equipment is stored safely when not in use
- 7.Use proper & sharpen Bit for Electrical Demolition hammer

**Don'ts:**

- 1.DON'T operate on hazardous materials
- 2.DON'T use the cord for carrying, pulling or unplugging
- 3.Do not touch steel during or immediately after operation. The steel becomes very hot during operation and could cause serious burns

NEEDLE VIBRATOR	SHUTTER VIBRATOR	SURFACE VIBRATOR
For Concrete	For large concrete structure with prefab formwork	For floor, slab



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Pictures

Material Code

Safety Alert

Nil

Risk Control  
Measures

**Do's:**

1. Always wear rubber, insulated gloves and protective boots or shoes when operating. Safety glasses should be worn at all times.
2. Always carry the vibrator by grasping the motor
3. Caution should be used when handling equipment around water or when working in damp environments.
4. Ensure supply source is provided through 30mA ELCB.

**Don'ts:**

1. Never pull or drag the unit by the shaft, head, or electrical cord.
2. Do not run the vibrator when not in wet concrete, the vibrator head will overheat. The vibrator should be kept moving, in an up and down motion.
3. Do not use if cord is damaged or frayed.
4. Do not allow any person to play with a concrete vibrator. If the person receiving this handout will not be the user of the equipment, forward these instructions to the operator.

**6.4.3:-**

**BAR BENDING MACHINE**

Applicability Area

For bending reinforcement bars

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Pictures



Material Code

Indian Standard: IS:2502-1963 (reaffirmed 1994)

Safety Alert

Nil

Risk Control Measures

**Do's:**

1. Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as sockets etc.
2. Use two or three-finger triggers for power tools. Use four-finger triggers only when the tool is balanced.
3. Ensure supply source is provided through 30mA ELCB.

**Don'ts:**

1. Do not change the core shaft, adjust the angle and the speed while the machine operates.
2. Do not add oil or clean the machine while the machine work.
3. Do not process max. rebar than the machine allowing.
4. Do not adjust higher speed than the machine allowing.
5. Do not let anyone stand at the side of the steel bar bender without setting fixing.
5. Do not let anyone at the place of dia of the steel bar bending working.

6.4.4:-

**TILE/ PLYWOOD CUTTER**



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Applicability Area

For Floor finish/ Plywood cutting works

Pictures



Material Code

Nil

Safety Alert

Nil

Risk Control Measures

- Do's:**
1. Ensure you fully understand and are familiar with its operation including emergency shut off procedures.
  2. Ensure that the equipment is assembled and used according to the manufactures and hires instruction.
  3. Check controls and any other safety devises.
  4. Ensure secure footing and clear access to the work area
- Don'ts:**
1. Do not force or overload the tool

**6.4.5:-**

**FLOOR POLISHING MACHINE**

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Applicability Area

For heavy-duty standard speed floor machine may be used for spray buffing, dry buffing, scrubbing and stripping applications

Pictures



Material Code

Nil

Safety Alert

Nil

Risk Control Measures

**Do's:**

- 1.Ensure secure footing and clear access to the work area.
- 2.Always unplug the floor buffer before changing the buffing pad or cleaning block.

**Don'ts:**

- 1.Do not run the floor buffer over electrical cords, door stops, or other obstructions.

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**6.4.6:-**
**HAMMER**

TYPES

Applicability Area

Pictures

Material Code

TYPES

Applicability Area

Pictures

Material Code

TYPES

Applicability Area

Pictures

Material Code

SLEDGE	BRASS SLEDGE	COPPER HEAD SLEDGE
In Construction, Demolition, Mining, Bending & Shaping metals	In Oil Rigs, Gas industry, Automotive applications where struck surface is soft	Underground coal mining, Metal forming
		
Nil	Nil	Nil

CLAW	BRICK
For Pulling Out Nails, Lifting Floorboards, Carpentry Work	For Brickwork
	
Nil	Nil

CROSS PEIN	BALL PEIN
For, Heavy Forging • Bending & Shaping Metal • Spreading Metal • Driving Punches & Chisels • Driving Masonry Drills • Concrete & Stone Work • Starting Panel Pins & Tacks	For, Bending & shaping metal • Driving punches & chisels • Concrete & stone work • Setting rivets • Texturing face of metal
	
Nil	Nil

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Safety Alert

Safety Alert Description

Safety Alert Recommendation

Risk Control Measures

IM/Zone-5/201920/032- LTI	IM/Zone-6/201920/040- LTI
<p>During 07 door periphery lead repairing work, the IP was fixing lead sheet. He had a hammer in his left hand and his right hand was positioned near the point of lead dressing area. The hammer slightly slipped from his hand and made impact on the right hand index finger glove. The IP then removed his hand gloves and found avulsion in his right index finger. He was immediately sent to plant dispensary for treatment</p>	<p>On 03.12.2019 at 11:15am in 325/6p3/1st X-cut Cabletech machine was deployed. From last shift shank was broken and 7 rods were jammed in hole so at 11 am operator left 4 rods in the hole. IP was hammering at thread part of rod to pull out broken part of shank. At that time when he hammered a small part of thread of rod broken and one small metal chip pierced in to his right thigh. First aid was given at site and IP was taken to Dariba Zinc Hospital further IP was referred to Udaipur for treatment</p>
<p>1.Hira register to be updating to mitigate the hazard</p> <p>2.Wooden block redesigning to be done</p> <p>3.Short handle hammer usage to be procured for restricted places</p>	<p>1.Hira register to be update to mitigate the hazard</p> <p>2. SOP should be prepare for shank changing.</p> <p>3.Proper tools for fishing the broken pieces should be provided.</p>

**Do's:**

1. ALWAYS wear safety glasses & gloves before starting job
2. ALWAYS check to make sure no one is in the way of your swing before you use the hammer
3. ALWAYS hold onto the handle with your dominant hand
4. ALWAYS place your work piece on a hard surface
5. ALWAYS check your surroundings to make sure you won't hit anyone when you swing the hammer
6. ALWAYS swing with your whole arm and elbow
7. ALWAYS hit your work piece squarely with the head of the hammer
8. ALWAYS inspect the hammer before beginning the task to be sure it is not damaged and that all parts are secure. Be certain that replaceable faces are fitted securely into the head. On split-head hammers, be sure that the face and handle securing screws are periodically retightened, as necessary
9. ALWAYS replace striking faces before they wear down far enough to

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**6.4.7:-**
**CHISEL**

Applicability Area

For dressing, shaping or working on solid material like, wood/ stone/ metal

Pictures



Material Code

Nil

Safety Alert

Nil

 Risk Control  
Measures

**Do's:**

1. Prior to use, always inspect hand tools for defects or damage (e.g., splintered, loose, bend, or cracked tool handles, mushroomed tool heads, sprung tool joints, worn tool teeth)
2. Hold a chisel by using a tool holder if possible.
3. Clamp small work pieces in the vise and chip towards the stationary jaw when working with a chisel
4. Carry all sharp tools in sheath or holsters

**Don'ts:**

1. Do not use a chisel that has a dull cutting edge
2. Do not use a tool if the handle surface has splinters, burrs, cracks or splits.
3. When handing a tool to another person, direct sharp points and cutting edges away from yourself and the other person.
4. Do not carry sharp or pointed hand tools such as probes or knives in your pocket unless the tool or your pocket is sheathed.
5. Do not perform "make-shift" repairs to tools.

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**6.4.8:-**

**HAND FILE & RASP**

Applicability Area

For coarsely shaping wood & other materials

Pictures



Material Code

Nil

Safety Alert

Nil

Risk Control Measures

**Do's:**

1. Prior to use, always inspect hand tools for defects or damage (e.g., splintered, loose, bend, or cracked tool handles, mushroomed tool heads, sprung tool joints, worn tool teeth)
2. Hold a chisel by using a tool holder if possible.
3. Clamp small work pieces in the vise and chip towards the stationary jaw when working with a chisel
4. Carry all sharp tools in sheath or holsters

**Don'ts:**

1. Do not use a chisel that has a dull cutting edge
2. Do not use a tool if the handle surface has splinters, burrs, cracks or splits.
3. When handing a tool to another person, direct sharp points and cutting edges away from yourself and the other person.
4. Do not carry sharp or pointed hand tools such as probes or knives in your pocket unless the tool or your pocket is sheathed.
5. Do not perform "make shift" repairs to tools.



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**6.4.9:-**

**SHOVEL & HOE**

Applicability Area

For digging, lifting, and moving bulk materials, such as soil, coal, gravel, & ore

Pictures



Material Code

Nil

Safety Alert

Nil

Risk Control Measures

**Do's:**

1. Prior to use, always inspect hand tools for defects or damage (e.g., splintered, loose, bend, or cracked tool handles, mushroomed tool heads, sprung tool joints, worn tool teeth)
2. Always keep the cutting edges of shovel when digging, always keep a safe distance from body
3. Adequate PPE wrt job/ working area shall be ensured before starting job

**Don'ts:**

1. Do not use a tool if the handle surface has splinters, burrs, cracks or

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6.4.10:-

DRILL MACHINE

TYPES

Applicability Area



Pictures

Material Code

TYPES

Applicability Area

Pistol Grip	Hammer
To drill hole in any light weight or thin sheets which are metal/ non-metallic	To Drill hole in any Wall or civil structure
	
Cheston 10mm Powerful Drill Machine, CAMEL BRAND Drill Machine .KHADIJA Powerful Simple Electric Drill Machine ,Bosch Drill Machine Kit, 0 - 2600 Rpm,Ralliwolf 12063D	Bosch make Rotary Hammer with SDS plus GBH 2-22 E,SDS max GBH 5-40 Tiger Rotary Hammer TGP 220,Tiger Rotary Hammer TGP 220,KHADIJA TIGER TGP-226 800WATTS 26MM,POWERTEX Rotary Hammer (PPT-RH-20-E)

Bench/ Magnetic Press	Cordless
To drill holes in large steel/other metals with precision	To drill big hole in electrical panels to fix cable gland
	

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Pictures

Material Code

Safety Alert

Safety Alert  
Description

Safety Alert  
Recommendation

Risk Control  
Measures

**IM/20162017/681-HIPO**

On 07.09.2016 at about 10.00 AM, A Crew of two people was deployed for the cable dressing job near the diesel pump area. The person was using the Electric operated hand drill for the floor chipping work to grout the tray support by mason work. During the inspection it was found that No hot work permit was taken be the initiator.

1-Awareness training sessions to workers who will work near this area.

2.Sign board is to be display at this area as USE OF ELECTRICALLY OPERATED MACHINES ARE PROHIBITTED.

**Do's:**

1.For Magnetic drill machine to stick properly on surface, base needs to be of ferrous metal. Always use this machine on flat and level surface.

2.Prior to using this machine the work area must be clear of all debris, chips, hazardous items.

3.Use right cutter for application as per OEM manual.

4.Use coolants while drilling. coolants increase the life of drill and avoids overheat/redness.

5.After fixing the drill, check the tightness of machine with respect to base, manually.

6. Batteries recommended by OEM only to be used and stored at designated place in case of battery operated tools.

7.Ensure that the equipment is stored safely when not in use

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**6.4.11:-**

**GRASS CUTTING MACHINE**

Applicability Area

Pictures

Material Code

Safety Alert

Grass cutting in lawn/beautification



Kent KSL-612 Vacuum Cleaner ,INALSA MAKE,KARCHER MAKE

Nil

**Do's:**  
1.Ensure shields are available at the lower deck of mower. The shields should be adequate to prevent operators for or any other body part coming in contact with mower.




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Risk Control Measures

**6.4.12:-**

**DIGGING TOOLS**

- TYPES
- Applicability Area
- Pictures
- Material Code

SHOVELS	SCOOP	SPADE
Bulk material handling, shifting and sample collection of coal, coke etc.	Sample collection	Digging, bulk material handling, breaking lumps of raw material, gardening
		
IS 274-1 and 2		

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**Safety Alert**

Nil

**Risk Control Measures**

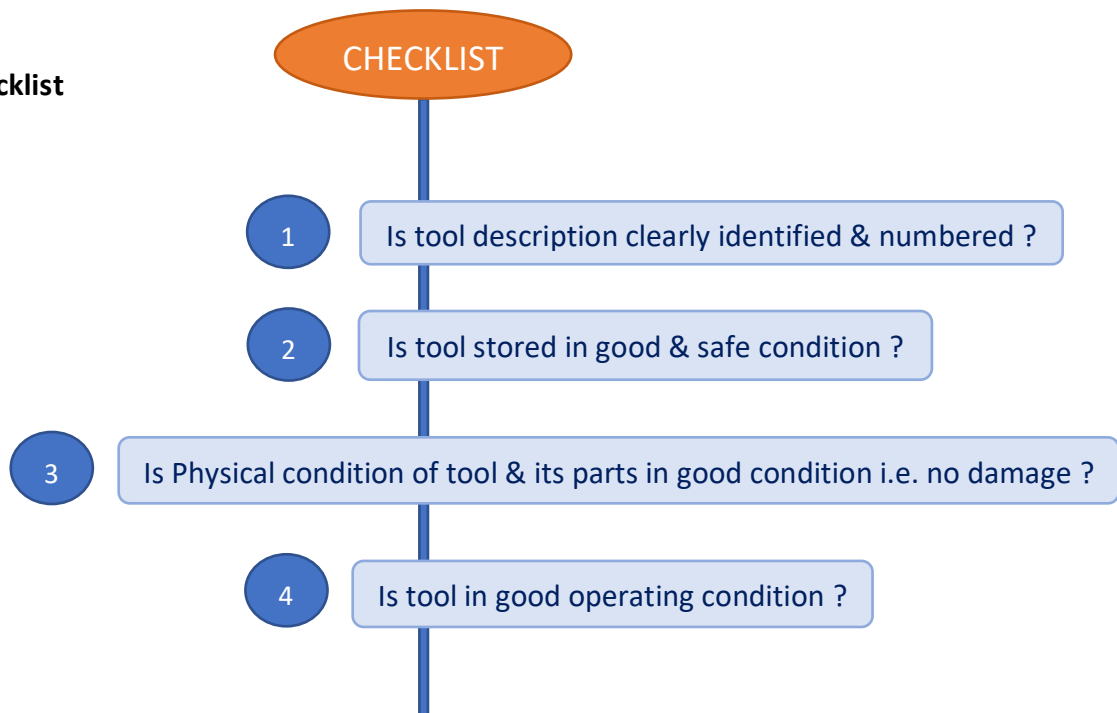
**Do's:**

1. Prior to use, always inspect hand tools for defects or damage (e.g., splintered, loose, bend, or cracked tool handles, mushroomed tool heads, sprung tool joints, worn tool teeth)
2. Always keep the cutting edges of shovel when digging, always keep a safe distance from body
3. Adequate PPE wrt job/ working area shall be ensured before starting job

**Don'ts:**

1. Do not use a tool if the handle surface has splinters, burrs, cracks or splits.
2. Do not perform "make-shift" repairs to tools.
3. Don't lift too much weight on each dig. Only lift what you can handle to avoid putting extra strain on muscles.
4. Do not horseplay with hand tools

**ANNEXURE 4:-  
Civil Hand Tools Checklist**



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5

Is tool along with its properties tested &amp; certified for use ?

6

Is working area clean (before starting &amp; after finishing) job ?

7

Is Line of fire clearly visible &amp; do you along with team working in line of fire ?

8

Do you ensure that you have all required PPE before starting job ?

9

Is outside of the tool is free of grease, oil and accumulated foreign matter?

10

Is warning signs of working floors near the area boundary placed ?

11

Are rotating or moving parts of the tool are guarded to prevent physical contact?



Others (If any) !


**Note:** All the checklist points to be answered "Yes" to certify the machine



**ANNEXURE A:-**

**TEST CERTIFICATE (Passed/ Defective)**

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	<b>TEST CERTIFICATE</b> <i><b>PASSED</b></i>	
Tool/ Machinery/ Equipment Name: _____		
Make/ In-House: _____		
Testing Date: ____/____/____ Time: _____ AM / PM		
Due Date: ____/____/____ Time: _____ AM / PM		
Agency/ Department Name: _____		
Checked By & Sign: _____/_____		
Remarks: _____		
<b>TESTING FREQUENCY</b>		
DAILY / WEEKLY / FORTNIGHTLY / MONTHLY / QUARTERLY / YEARLY		

	<b>TEST CERTIFICATE</b> <i><b>"REPAIR" DEFECTIVE</b></i>	
Tool/ Machinery/ Equipment Name: _____		
Make/ In-House: _____		
Testing Date: ____/____/____ Time: _____ AM / PM		
Repairing Last Date: ____/____/____		
Agency/ Department Name: _____		
Checked By & Sign: _____/_____		
Remarks: _____		
<b>" DO NOT USE TILL REPAIRED "</b>		

	<b>TEST CERTIFICATE</b> <i><b>"DISCARD" DEFECTIVE</b></i>	
Tool/ Machinery/ Equipment Name: _____		
Make/ In-House: _____		
Testing Date: ____/____/____ Time: _____ AM / PM		
Agency/ Department Name: _____		
Checked By & Sign: _____/_____		
Remarks: _____		
<b>" DO NOT USE "</b>		



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## **Abbreviations**

- CSRP- Corporate Standards, Rules and Procedures Subcommittee
- HZL- Hindustan Zinc Limited
- HSE- Health, Safety and Environment
- IMS- Integrated Management System
- CSC- Corporate Safety Council
- UIC- Unit Implementation Committee
- ZSC- Zone Safety Committee
- SRPSC- Standards, Rules & Procedure Subcommittee
- PPE- Personal Protective Equipment
- FAI- First Aid Injury
- MTI- Medical Treatment Injury
- LTI- Lost Time Injury
- HIRA- Hazard Identification & Risk Assessment
- JSA- Job Safety Analysis
- SLI- Safe Load Indicator
- RTO- Road Transport Organisation.
- PUC- Pollution under control certificate
- HIRA- Hazard Identification and Risk Assessment
- SOP- Standard Operating Procedure
- WI- Work Instruction
- OSHA- Occupational Safety & Health Association.
- IS- Indian Standard
- EN- European Standard

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**Document Control Details**

Revision	Date	Reason for Issue	Compiled by	Approved by
Next Review Date				

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**DOCUMENT ISSUE**

The “Hand Tools” Standard is issued by the Corporate Safety Council on behalf of Hindustan Zinc Limited management and forms a part of the HZL Integrated Management System.

**Name:** Chairman, Corporate SRP Sub Committee

**Signed:** .....

**Date:**.....

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Zone-4: Zawar	Mr. Rohitash Sharma,Mr. Kumar Prashant
Zone 6: SKM	Mr. R Bharanisankar
Zone 9: Project	Mr. Rakesh Kumar Yadav (SK Project),Mr. Rajesh Bansal (Fumer Project)
Corporate HSE	Mr. Durgadas Rathore, Mr. Kumar Puri

### Organogram for Hand tool Standard

<b>Chairman</b>	<b>Rakesh Rohila</b>								
<b>Secretary</b>	<b>Mukhtar Ah. Chat</b>								
Zone	Leader	SRP Chairman	UIC Member						
			UIC-1	UIC-2	UIC-3	UIC-4	UIC-5	UIC-6	UIC-7
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Kayad	Sumit Sahu	Manish Kamera	Sumit Sahu						