



11 KEY MACHINES IN BUILDING

USEFUL ADVICE
FOR THEIR SAFE
OPERATION AND USE



MINISTERIO
DE TRABAJO
Y ASUNTOS SOCIALES



INSTITUTO NACIONAL
DE SEGURIDAD E HIGIENE
EN EL TRABAJO



11 KEY MACHINES IN BUILDING

**USEFUL ADVICE FOR THEIR
SAFE OPERATION AND USE**

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Esta publicación está disponible
en los siguientes idiomas:

- Castellano
- Inglés
- Francés
- Rumano
- Portugués

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REPRODUCED WITH THE PERMISSION OF THE FOUNDATION FOR THE PREVENTION OF RISKS AT WORK, OWNER OF THE ORIGINAL IDEA.

This book partially reproduces action 015-IS/2005, requested jointly by the Spanish Association of Renters of Operatorless Building and Industrial Machinery (ASEAMAC), the National Building Conference (CNC) and the State Federation of Metal, Building and Similar section of the General Workers' Union (MCA-UGT).

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MCA-UGT-ESTATAL

Dear companions,

This publication basically provides practical advice on health and safety and the use and operation of the most usual building machinery.

Certainly many of you will already have had experience of some of these machines. Nevertheless, we hope that the following pages will show you some aspects that have passed unnoticed, aspects that are all important in preventing accidents at work.

Therefore this work provides more and fuller information than that required by the law for the prevention of risks at work.

Aware of the large number of workers from other countries, MCA-UGT has also decided to publish it in various languages in order that this information can reach the largest possible number of workers.

We hop you will find it of great interest and use.

With brotherly greetings.

Manuel Fernández López “Lito”
General Secretary, MCA-UGT

1. GENERAL CONSIDERATIONS ON THE DUMPER

- This leaflet gives the safety standards to be followed by dumper drivers in order to operate the machine safely.
- It is valid for **front loading, 180° turning, high and self-loading dumpers**.
- These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instruction manual. These instructions are in addition to the information and warning plates on the machine.
- A dumper is a machine generally designed to **carry light materials such as earth, rubble and similar**.
- It must only be used for the purpose for which it has been designed and always by **persons authorised and trained** in the use of this type of machine.
- **The driver must familiarise himself with the handling of the dumper** before using it for the first time. He must know the operation and direction of movement of each control, the means of stopping the engine quickly, the machine's possibilities and limitations, the space needed for manoeuvring and the purpose of the safety devices.
- For driving on the site, the driver should have at least **a normal driving licence**. When driving on public roads, this is obligatory.
- **Do not use the dumper when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the dumper must only be carried out **by specialised personnel from the rental company**.

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs**. Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Safety boots**. These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Safety helmet**. Must be worn when the dumper has no safety roof or when there is a risk of falling objects or blows to the head on leaving the vehicle.
 - **Safety goggles**. These must be worn when there is no windscreen and there is a risk of flying objects reaching the eyes.
 - **Ear defenders**. These are obligatory when the noise exposure level $L_{Aeq,d}$ for the driver exceeds 87 dB(A).
 - **Safety gloves**. Must be used when checking the dumper's state.
 - **Reflective clothes or waistcoat**. Obligatory when other vehicles are working nearby.



3. BEFORE STARTING WORK

Risks

- Running over.
- Blows.
- Collisions with other vehicles.
- Overturning of the dumper.
- Crushing.

Preventive measures

- Know the **site health and safety plan** and follow the **safety co-ordinator's** instructions. Keep up to date daily on the work carried out that may cause a risk (pits, trenches, etc), of other work being carried out simultaneously and the state of the working area (slopes, obstacles, ice, etc).
- Follow the **traffic rules** for the site and, generally, those in the Highway Code. If necessary, place suitable protection around areas set aside for pedestrians, workers and vehicles.
- The dumper must be **approved** for use on public roads with all required safety and signalling devices (lights, registration plate, etc).
- Know the working area, especially the type of terrain and those places where there may be restrictions on height, width or weight.



- Overturning of the dumper.
- Falling objects.

- Avoid working near the edges of excavations, trenches, slopes and drops. Always keep at a safe distance from edges. When necessary, the dumper must have a **safety structure against overturning**.
- Avoid working in areas with a danger of falling objects. When necessary, the dumper must have a **protective structure in the direction of the falling objects** (top, front, side or rear).
- Check that the vehicle has a plate ensuring its disposition.



- Risks caused by poor visibility (collisions, running over, etc).

- When **visibility is poor** (fog, rain, snow, etc), work must be suspended until the weather improves.
- When natural lighting is insufficient, work must stop if the dumper does not have its own lights or there is no artificial lighting to provide suitable visibility in the work place.
- Turn on the lights when driving on the public road and when visibility is poor.



- Poisoning by inhaling carbon monoxide.
 - Asphyxia.
- The machine must only be used in **closed spaces** (inside buildings, tunnels, etc) when good ventilation is assured before starting the engine. In these cases, the engine must be stopped when the dumper is not in use.
-
- Fire.
 - Explosion.
- Never use the dumper in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).
-
- Risks from losing control of the dumper.
- Keep the driving position **free of objects and tools** that may move freely and obstruct manoeuvring.
-
- Risks from poor visibility.
 - Inhaling dust.
- When there is **excessive dust in the air** in the work place, such as that caused by the movement of other vehicles or by the work itself, the area should be suitably sprinkled to remove the dust but without producing mud.



4. DAILY CHECKS ON THE DUMPER

- Check that the dumper has no apparent structural damage or leaks of liquids.
- Check that all the safety and protection devices are in good condition and properly fitted.
- Check that the tyre pressures are correct and that there are no cuts in their treads.
- Check that the fuel, hydraulic oil, engine oil and cooling water levels are correct.
- Check that the lights and horn are in good condition and working properly.
- Keep the driving position, sides and handles clean and free of oil, grease, mud, ice, etc.
- If fitted, check the condition and adjustment of the rear view mirrors and keep the cab windscreen clean.
- Check that the safety belt and its anchoring are in good condition and that the seat is suitably adjusted.
- Ensure that the information and warning plates on the dumper are clean and in good condition.



5. WHEN STARTING THE DUMPER

Risks

- Falls to another level.
- Blows.
- Running over.
- Collisions with other vehicles.
- Risks from uncontrolled movements of the dumper.
- Trapping.
- Blows.

Preventive measures

- Get onto and off the dumper from the front using the steps and handles on the machine. Do not use the steering wheel and/or levers as handles. **Don't jump from the machine except in an emergency.**
- Hands must be kept dry and soles kept free of mud and grease.
- Before starting the engine, check that **nobody is within the dumper's radius of operation** and at all times ensure that nobody remains within this radius when it is in use.
- When the presence of other persons with machines not connected with the dumper's operation cannot be avoided, set up **co-ordination between jobs**.
- The dumper must only be started from the driver's position. Once seated, **fasten the safety belt** before starting the engine.
- Check beforehand that all the **levers and controls are in their neutral positions**.
- Follow the manufacturer's instructions for starting the dumper's engine. Once the engine is running, check its proper operation by watching the pilot lights and slowly operate the controls to check their proper response, especially the brakes.



6. WHEN DRIVING THE DUMPER

Risks

- Falls to another level.
- Hitting objects.
- Collisions with other vehicles.
- Overturning of the dumper.

Preventive measures

- **Never carry persons in the hopper or on the dumper's sides.**
- **Drive on firm tracks or ground**, avoiding driving over obstacles.
- Match the speed to the working conditions and the state of the ground, always respecting the site speed limit. Drive at moderate speed and manoeuvre the dumper smoothly when loaded.



■ Risks of machine out of control.

- When it is necessary to **mount or drive down from kerbs** or enter containers, place gently sloping ramps of a material that can support the dumper's weight. Move forwards up or down, avoiding turns.
- When driving frequently through mud, check the correct operation of the brakes frequently.
- Always keep at a safe distance when driving near other machines. Take great care at crossings with poor visibility.



■ Hitting objects.
■ Overturning of the dumper.
■ Running over.

- **Always look** in the direction in which the dumper is moving. Before changing direction, check that space is available and that there are no trenches, pits, etc.
- If the dumper has no reverse warning horn, **blow the horn** before reversing.
- Never operate the lever to reverse direction until the dumper has stopped completely.



■ Hitting objects.

- Do not drive at high speed with the hopper raised and never use it as a bulldozer blade.
- In **dumpers with rotary unloading**, keep the longitudinal axis of the hopper facing the direction of movement.
- In **dumpers with a self-loading shovel**, drive with the shovel on the hopper unless the machine's plates indicate otherwise.
- Do not operate the hopper levers while the dumper is moving.



■ Overturning of the dumper.
■ Trapping of driver.

- Take great care when driving on **sloping ground**. Always choose **dry tracks with adherence**. Keep a safe distance from the edges.
- When ascending slopes with the dumper loaded, drive slowly without turning, with the load facing the slope and avoid sudden braking.
- When descending slopes with a gradient of over 10%, always do so in reverse, without turning and avoid sudden braking.
- Never work on slopes greater than those specified by the manufacturer. **WARNING!** The recommended gradient does not imply that manoeuvres can be made with total safety on it in any condition of load, ground or manoeuvre. In any case, the following gradient



values should not be exceeded: **20% on damp ground and 30% on dry ground.**

- In dumpers with mechanical transmission (gearbox or converter), never descend a slope with the gear lever in neutral.

- **Never drive across a slope.**



- Blows.
- Blows due to breakage of trailer cable.
- Loss of stability.
- Overturning of the dumper.

- **When driving on public roads with a trailer**, obey the traffic laws. Never drive faster than 10 km/h.
- Use only the **trailer hooks** provided by the manufacturer. Never use ropes, cables or similar.
- As a general rule, the hopper must be loaded to 25% of the maximum load permitted by the manufacturer. **The towed weight must not exceed this value.**

7. WHEN LOADING AND UNLOADING

Risks

- Blows.
- Trapping.
- Loss of dumper stability.
- Blows from parts of loading machinery.
- Flying objects.
- Loss of dumper stability.
- Spilling of load.
- Risks due to poor visibility (collisions, etc).
- Load hitting objects, vehicles, etc.

Preventive measures

- The hopper levers must only be operated from the driver's position.
- Hopper movements must be made slowly and progressively.
- **Do not operate the hopper while the dumper is moving.**
- Do not make two hopper movements simultaneously.
- When the hopper is loaded by an excavator or other, similar mechanical means, **never remain in the driver's seat or near to it** unless the dumper has a safety structure.
- Even if the dumper has a safety structure, **do not remain in the driver's seat** due to the risk of being hit.
- When loading, the dumper must be on firm, level ground.
- **The weight of the material loaded into the hopper** must never exceed the maximum load shown on the vehicle's plate.
- Once loaded and before moving, check the **correct arrangement of the load** so that it does not upset the dumper's stability.



- Do not carry elements or pieces (supports, panels or similar) that overhang the sides of the hopper.
 - Check that the material loaded does not block **forward visibility**.
 - Avoid piling material above the top of the hopper.

- Overturning of the dumper.
 - Trapping of driver.
 - When it is necessary to approach the **edge of a slope** to unload material, place suitable **end stops**. These stops must be of a suitably strong material to prevent the movement of the machine.
 - **Never approach unconsolidated slopes.**
 - Take great care when unloading on a slope. Never unload the hopper on a gradient greater than 10%.

- Landslides.
 - **Piles of earth**, rubble or similar must as a general rule be made at 2 m from the edge of an excavation, trench, slope or change in level.

- Loss of dumper stability.
 - Take great care when unloading materials that may stick strongly to the hopper (for example, clayey mud) or remain wedged in it (for example: stone blocks).



8. AT THE END OF THE DAY

Risks

- Blows.
- Risks from uncontrolled movements.
- Risks of use of dumper by unauthorised persons.

Preventive measures

- Park the dumper on a **surface that is as level and firm as possible**, where it does not prevent the passage of other vehicles or persons.
- If parked on a slope, the **wheels must be chocked**.
- As a general rule, the machine must not be parked less than 3 m from the edge of excavations or similar.
- **Do not leave the dumper with the engine running.**
- Before stopping the engine, place the **hopper in its rest position**.
- In **dumpers with rotating unloading**, the hopper must be left with its longitudinal axis aligned with the direction of movement.
- In **dumpers with a shelf-loading shovel**, the shovel must be left at ground level.



- Do not use the parking brake to stop the dumper.
- Set all the controls and levers to their neutral positions, set the parking brake and stop the engine according to the manufacturer's instructions.
- **Remove the ignition key** to prevent use by unauthorised persons.



9. CHECKING THE STATE OF THE DUMPER

Risks

- Explosion.
- Uncontrolled movement of the hoses (whiplash).
- Fore.
- Explosion.
- Burns.
- Splashes and contact with corrosive liquids.

Preventive measures

- Do not inflate the tyres above the **pressure specified by the manufacturer**.
- When inflating tyres, keep away from the connection point. A bursting hose or nozzle could cause a whiplash.
- **Fill with fuel** in well-ventilated areas with the engine stopped, the parking brake set and the battery disconnected.
- **Do not smoke** or remain on the vehicle while re-fuelling.
- Keep away from operations that may generate heat.
- When not filling up with a **hose**, pour the fuel into the tank with a **funnel** to prevent spills. If fuel is spilt, do not start the engine until the spill has been cleaned up.
- If fuel cans are kept on the site, they must be stored in a special place and signposted with the sign **"DANGER, INFLAMMABLE PRODUCT"** in a visible location.
- A **fire extinguisher** must be available in an accessible place near the dumper or on it if the manufacturer has equipped it with an extinguisher holder.
- **Do not keep greasy cloths or inflammable materials** near the exhaust pipe.
- **Do not touch the exhaust pipe or other parts of the engine** while the engine is running or still hot.
- Always fill up the coolant, engine oil and hydraulic oil reservoirs with the engine stopped and cold. Use safety goggles and gloves for this operation.



1. GENERAL CONSIDERATIONS ON THE VIBRATING TAMPER

- This leaflet gives the safety standards to be followed by **vibrating tamper** operators in order to operate the machine safely.
- It is valid for tampers driven by an **internal combustion engine**.
- These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instructions.
- These instructions are in addition to the information and warning plates on the machine.
- A tamper is a machine generally designed for **the light compacting of earth in trenches with buried conduits and for repairing tarmac**.
- It must only be used for its designed purpose and always by **persons authorised and trained** in handling this type of machine.
- **The operator must be familiar with the handling** of the tamper before using it for the first time. He must know the function of each switch, the machine's possibilities and limitations, the manner of stopping the engine quickly and the purpose of the safety devices.
- **Never use the tamper when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the tamper must only be carried out **by specialised personnel from the rental company**.

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs.** Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Safety boots.** These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Safety helmet.** Must be worn when there is a risk of falling objects or blows to the head.
 - **Safety goggles.** These must be worn when there is a risk of flying objects reaching the eyes.
 - **Gloves.** Must be used when checking the condition of the tamper.
 - **Face mask with mechanical filter.** Recommended for use when the area to be compacted is not damp.
 - **Ear defenders.** These are obligatory when the noise exposure level $L_{Aeq,d}$ for the operator exceeds 87 dB(A).



3. BEFORE STARTING WORK

Risks

- Falls at the same level.
- Falls at the different levels.
- Overturning of the tamper.
- Trapping.

Preventive measures

- Know the **site health and safety plan**. Keep up to date daily on the work carried out that may cause a risk (pits, etc), of other work being carried out simultaneously and the state of the working area (slopes, etc).
- Avoid working near the edges of excavations, trenches, slopes and drops.
- **Always keep at a safe distance from edges.**



- Asphyxia.
- Poisoning by inhaling carbon monoxide.

- The machine must only be used in **closed spaces** (inside buildings, tunnels, etc) when good ventilation is assured before starting the engine. In these cases, the engine must be stopped when the tamper is not in use.



- Fire.
- Explosion.

- Never use the tamper in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).



- Tamper falling onto persons.

- Use the lifting or fixing anchoring points on the machine for carrying it over large distances. **Follow the instructions of the rental company.**

- Inhaling dust.

- It is recommended that the area to be compacted be sprayed to prevent the generation of **dust in the atmosphere** when using the tamper.

4. DAILY CHECKS ON THE TAMPER

- Check that the tamper has no apparent structural damage or leaks of liquids.
- Check that the protective devices are properly placed and closed, especially the fuel tank cap.
- Check that the levels of fuel, engine oil and tamping system oil are suitable.
- Check that the tamper is not dirtied with oils or inflammable materials.
- Keep the handle clean and dry.
- Check that the engine ventilation holes are clean and that the air inlet filter is not blocked.
- Ensure that the information and warning plates are clean and in good condition.



5. USING THE TAMPER

Risks

- Uncontrolled movements.
- Blows.
- Flying objects.
- Blows from the handle.
- Loss of stability of the tamper.

Preventive measures

- Before starting the tamper's engine, place the machine on the surface to be compacted. Never start the tamper on a hard surface such as tarmac or cement.
- Before starting the engine, if the tamper has a vibration amplitude adjuster, check that the set amplitude is suitable for the type of material to be compacted.
- Check that **there are no workers** in the tamper's radius of action and at all times ensure that nobody remains within this radius when it is in use.
- Follow the manufacturer's instructions for starting the tamper's engine. If the **starting is manual**, do not release the starting handle suddenly. Release it slowly so that the cord returns to its initial position smoothly.
- Set the speed lever to match the consistency and density of the ground.

- Risks from the machine out of control.
- Blows from the overturning of the tamper.
- Blows against fixed elements.

- Guide the tamper to move forwards, always looking in its direction of movement.
- Drive the tamper using the handle so that your hands do not hit fixed elements. Keep your feet away from the tamper's shoe.
- **Never use the tamper for working in any direction except forwards.**

- Risks from the machine out of control.
- Fire.

- Do not use the tamper on hard surfaces such as concrete or compacted tarmac or on deeply frozen ground.
- **Never lay the tamper down** on the ground with the engine running. Do not release or left the tamper with the engine running.

- Exposure to high levels of vibration.

- **Do not allow the machine to be used continuously** by the same operator or for long periods. Organise the work considering the high levels of vibration issued by the machine. Rest periods should be set.
- Hold the handle with the least possible force compatible with its safe use. **Do not limit the movement of the tamper while in use.**



- Uncontrolled movements.
- Fire and explosion.
- Overturning of the tamper.
- Risks from the use of the tamper by unauthorised persons.

- When working in the cold, gloves should be used to keep the hands as warm as possible - this will reduce the effect of the vibration.
- Follow the manufacturer's instructions to stop the tamper's engine. Never stop the engine when it is running at full speed. Do not use the choke to stop the engine.
- In emergencies, switch off the engine switch directly.
- **Close the fuel tap** when the tamper is inactive for long periods.
- **Park the tamper vertically** on a level and firm surface. If it must be stored lying down, its front must rest on the ground.
- Keep the tamper in a clean and dry place, protected from the weather and from use by unauthorised persons.
- The tamper must be fixed to prevent unintentional movements.



6. CHECKING THE STATE OF THE TAMPER

Risks

- Fire.
- Explosion.

Preventive measures

- Re-fuel with **the engine stopped and cold** and the fuel tap closed.
- **Do not smoke** when using the vibrating tamper or re-fuelling.
- Keep away from operations that may generate heat. **Do not keep greasy cloths or inflammable materials** near the engine or exhaust pipe.
- Fuel must be poured into the tank with a **funnel**. If fuel is spilt, do not start the engine until the spill has been cleaned up.
- An easily-accessible **extinguisher** must be available near the machine.



- Burns.
- Splashes and contact with corrosive liquids.

- **Do not touch the exhaust pipe or other parts of the engine** while the engine is running or still hot.
- Always fill the engine oil and tamper system reservoirs with the engine stopped and cold. Use safety goggles and gloves for this operation.



1. GENERAL CONSIDERATIONS ON THE CONCRETE MIXER

- This leaflet gives the safety standards to be followed by operators using an **electrically-powered tilting drum concrete mixer**.
- These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instruction manual.
- These instructions are in addition to the information and warning plates on the machine.
- A concrete mixer is a machine designed to make **mortar and concrete** by mixing ingredients such as various sizes of gravel and cement, basically.
- Use the concrete mixer only for the purpose for which it was designed.
- The concrete mixer must only be used by **persons authorised and trained** in handling this type of machine.
- **The operator must familiarise himself with its handling** before using it for the first time. He must know the function of each switch, the machine's possibilities and limitations, the means of stopping the motor quickly and the purpose of the safety devices.
- **Do not use the concrete mixer when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the dumper must only be carried out **by specialised personnel from the rental company**.

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs.** Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Safety goggles.** These must be worn to protect against flying objects when the concrete mixer is turning.
 - **Safety boots.** These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Wellington boots.** These protect the worker against the damp.
 - **Rubber gloves.** Worn to protect direct contact between the skin and the concrete.
 - **Ear defenders.** These are obligatory when the noise exposure level $L_{Aeq,d}$ exceeds 87 dB(A).
 - **Safety helmet.** Must be worn when there is a risk of falling objects or blows to the head.



3. BEFORE STARTING WORK

Risks

- Overturning of the machine.
- Falling at the same level.
- Falling at different levels.
- Falling of the concrete mixer from a height.
- Falling of hanging loads.

Preventive measures

- Know the **site health and safety plan** and follow the **safety co-ordinator's** instructions, especially regarding the location of the concrete mixer.
- Keep up to date daily on the work carried out that may cause a risk (pits, trenches, etc), of other work being carried out simultaneously and the state of the working area (obstacles, dirt, etc).
- Place the concrete mixer on a firm and level surface that is as clean and dry as possible.
- Keep the space around the concrete mixer free of obstacles.
- Do not place the concrete mixer near the **edges of structures, slopes or depressions in the ground** unless effective protection measures are in place (handrails, etc).
- Do not place the concrete mixer under **areas crossed over by hanging loads** or in **areas crossed by machinery or persons**.



- Indirect electrical contacts.

- Do not use the concrete mixer outdoors in **bad weather** (rain, snow, insufficient light, high winds, etc.).
- Do not dampen the concrete mixer's electric motor or touch it with wet hands.



- Fire.
- Explosion.

- Never use the concrete mixer in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).

- Falling of the concrete mixer from a height.
- Blows against the concrete mixer.

- Use the lifting or fixing anchoring points on the machine for carrying it over large distances. **Follow the instructions of the rental company.**
- For moving over short distances, place the drum in its vertical position with the opening downwards, raise the handle and push the machine, looking in the direction of movement.



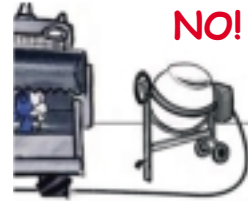
YES! NO!

- Direct electrical contact.
- Indirect electrical contact.

- Before connecting the concrete mixer to electrical power, check that its voltage and frequency match those on the machine's data plate.
- The connection must be made using a weatherproof plug. Do not make direct connections by sticking the

wires into the socket. Do not overload the socket by using adaptors.

- Check that the power point has a circuit breaker, magneto thermal switch and earthed base. **Do not over-ride these devices.**
- The **circuit breaker** may be of low sensitivity (300 mA) as all the concrete mixer's ground connections are earthed at less than 80 ohms. Otherwise, the circuit breaker must be of the high sensitivity type (30 mA).
- If there is any doubt over the suitability of the earth connection, consult an electrician.
- When extension cables are used, check that they are of a suitable cross section and have an earth wire. **Always check the continuity of the earth cable.**
- Keep the electrical cable unravellled and away from heat, puddles or water or oil, sharp edges and moving parts.
- Protect the electrical cable where it runs through areas transited by workers and vehicles. Wherever possible, keep the cable off the ground.



4. DAILY CHECKS ON THE CONCRETE MIXER

- Check that the concrete mixer has no apparent structural damage and that the electrical panel is waterproof.
- Check that the motor casing and the crown gear and drive chain are correctly positioned.
- Check that the drum tilt wheel and its brake function correctly.
- Check that the electrical cable and plug are in good condition.
- Check that the electrical cable is long enough to connect the concrete mixer easily.
- Ensure that the information and warning plates on the concrete mixer are clean and in good condition.



5. USING THE CONCRETE MIXER

Risks

- Risks from accidental starting.
- Wear or breakage of parts of the concrete mixer.

- Flying objects.

- Exposure to noise.
- Trapping in moving parts of transmission or work.

- Risks from the use of the concrete mixer by unauthorised persons.
- Wear or breakage of parts.

- Damage to the machine.
- Flying objects.

Preventive measures

- Before connecting the electrical cable to the power supply, check that the start switch on the concrete mixer is off.
- Once the cable is connected, operate the start switch.
- It is recommended that the machine be started with the drum empty.

- Fill and empty the drum with the concrete mixer running.
- Before tipping the drum, check that nobody is within its radius of action.
- To unload the material, tread on the pedal to unlock the tip wheel and then turn the wheel smoothly to tip the drum.

- **Keep the motor casing closed and the crown gear and drive chain covers properly fixed** while using the concrete mixer.
- Do not insert tools or parts of the body into the concrete mixer drum.
- Avoid contact between tools or similar and the machine's moving parts.
- Stop the concrete mixer before carrying out any operation in the drum.
- **Do not leave the concrete mixer with the motor running.**

- Press the motor stop switch then unplug the electrical cable.
- For long periods without use, the drum should be left in the vertical position with the opening downwards.
- Block the concrete mixer to prevent its use by unauthorised persons.

- The general cleaning of the concrete mixer must be carried out **with the motor stopped**.
- Use low pressure water, avoiding aiming the jet directly at the motor.
- Never bang the drum to loosen build-ups of dry mix.



1. GENERAL CONSIDERATIONS ON THE CIRCULAR WOOD SAW BENCH

- This leaflet gives the safety standards to be followed by operators of a **circular wood saw bench**.
- These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instruction manual.
- These instructions are in addition to the information and warning plates on the machine.
- This circular saw bench is a machine designed specifically for **cutting pieces of wood**.
- Use the saw bench only for its designed purpose. **Do not use it to cut other types of materials**.
- The saw bench must only be used by **persons authorised and suitably trained** in handling this type of machine.
- **The operator must familiarise himself with the handling of the bench** before using it for the first time. He must know the function of each switch, the machine's possibilities and limitations, the manner of stopping the motor quickly and the purpose of the safety devices.
- **Never use the machine when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the circular saw bench must only be carried out **by specialised personnel from the rental company**.

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs**. Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Safety goggles**. These must be worn when there is a risk of flying objects while cutting.
 - **Safety boots**. These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Safety helmet**. Must be worn when there is a risk of falling objects or blows to the head.
 - **Ear defenders**. These are obligatory when the noise exposure level $L_{Aeq,d}$ for the operator exceeds 87 dB(A).



3. BEFORE STARTING WORK

Risks

- Overturning of the machine.
- Falling at the same level.
- Falling at different levels.
- Falling of the bench from a height.
- Falling of hanging loads.

Preventive measures

- Know the **site health and safety plan**. Keep up to date daily on the work carried out that may cause a risk (lack of handrails, etc), of other work being carried out simultaneously and the state of the working area.
- Place the bench on a surface that is stable, level, dry and free of materials and objects. There must be sufficient space around the bench for the length of the pieces to be cut.
- Place the bench so that the cutting is made downwind and so that sawdust does not reach other workers.
- **Do not place the bench near the edge of structures**, unless protection devices are in place (handrails, nets, etc).
- Do not place the machine under **areas in which hanging loads are moved** or in **areas through which machines or people pass**.

- Direct electrical contact.
- Indirect electrical contact.

- Before connecting the bench to electrical power, check that its voltage and frequency match those on the machine's data plate.
- The connection must be made using a **weatherproof plug**. Do not make direct connections by sticking the wires into the socket. Do not overload the socket by using adaptors.
- Check that the power point has a circuit breaker, magneto thermal switch and earthed base. Do not over-ride these devices.
- The **circuit breaker** may be of low sensitivity (300 mA) as all the concrete mixer's ground connections are earthed at less than 80 ohms. Otherwise, the circuit breaker must be of the high sensitivity type (30 mA). If there is any doubt over the suitability of the earth connection, consult an electrician.
- When extension cables are used, check that they are of a suitable cross section and have an earth wire. **Always check the continuity of the earth cable.**
- Keep the electrical cable unravellled and away from heat, puddles or water or oil, sharp edges and moving parts.
- Protect the electrical cable where it runs through areas transited by workers and vehicles. Wherever possible, keep the cable off the ground.



- Indirect electrical contacts.
 - Risks caused by poor visibility.
 - Fire and explosion.
- Do not use the saw bench outdoors **in bad weather** (rain, snow, insufficient light, high wind speeds, etc).
 - Do not operate the saw bench in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).
- Blows against fixed objects.
 - Falling of the bench at different levels.
 - Falling of objects at different levels.
- For movements at the same level, use the wheels and handles provided by the manufacturer. Push the machine, looking in the direction of movement.
 - For movements at different levels, **do not hang the bench directly** from the crane hook using a sling. Place it on a suitable base (tray, etc).



4. DAILY CHECKS ON THE CIRCULAR SAW BENCH

- Check that the bench has no apparent structural damage and that the electrical panel is waterproof.
- Check that the upper and lower blade guards are in good condition and properly placed and fixed.
- Check that a pusher stick and longitudinal and transverse guides are available and in good condition.
- Periodically check that the sawdust extraction grille on the lower guard is not blocked.
- Check that the electrical cable and plug are in good condition.
- Ensure that the information and warning plates are clean and in good condition (indication of direction of rotation, etc).



5. USING THE CIRCULAR SAW BENCH

Risks

- Cuts.
- Breakage of blade.
- Flying objects.

Preventive measures

- Before starting the machine, and periodically, visually check the **good condition of the blade**, turning it by hand with the electrical cable disconnected.
- Replace the blade when it is scratched, worn or has missing teeth (with the power cable disconnected). After replacement, check that the nuts and bolts are properly tightened and that spanners and adjustment tools have been removed.



- Cuts.
- Breakage of blade.
- Flying objects.

- Cuts.
- Flying objects.
- Falling objects.
- Overturning of the saw bench.

- Cuts.
- Burns.
- Risks from the use of the bench by unauthorised persons.
- Falling objects at different levels.

- Only blades with diameters recommended by the manufacturer and designed for the machine's rotational speed may be used.
- Check that the blade is of suitable material for the job.

- **Do not allow other persons to remain** within the machine's radius of action both when start it and while cutting.
- Connect the electrical cable to the socket and press the starter switch. Check that the blade makes no strange noises and turns in the correct direction.
- The upper guard must always protect the blade. **Do not remove or block it.**
- **Do not leave the machine with the motor running when work has finished.**

- Always stand in front of the controls at the entry point of the material to be cut.
- Check that the pieces of wood **have no knots or metal pieces** such as nails, screws, etc. Remove them before cutting.
- Do not push the pieces towards the blades by hand with the thumbs spread out. **Keep the hands as far as possible from the blade** (at least 20 cm).
- Always use the **pusher** with small pieces (wedges, etc) and when reaching the end of the piece. Never use the hands directly.
- With large pieces, remember that cut pieces may fall from the bench and that the bench itself may tip.

- After finishing the job, press the stop button to stop the motor. Then unplug the electrical cable.
- **Do not raise the guard until the blade has completely stopped.**
- Do not touch the blade immediately after finishing the job. Wait for a safe time until it has cooled.
- Clean the bench with the motor stopped and the power cable unplugged. Never use pressurised water, use a damp cloth. Use gloves and hooks to remove shavings and small off-cuts.
- Keep it in a safe place where it cannot be used by unauthorised persons. Do not leave it hanging from a crane hook during periods of inactivity.



1. GENERAL CONSIDERATIONS ON THE CIRCULAR BRICK SAW BENCH

- This leaflet gives the safety standards to be followed by operators of a **circular brick saw bench**.
- These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instruction manual.
- These instructions are in addition to the information and warning plates on the machine.
- This circular saw bench is a machine designed specifically for **cutting mineral materials** (paving slabs, etc).
- Use the saw bench only for its designed purpose. **Do not use it to cut other types of materials.**
- The saw bench must only be used by **persons authorised and suitably trained** in handling this type of machine.
- **The operator must familiarise himself with the handling of the bench** before using it for the first time. He must know the function of each switch, the machine's possibilities and limitations, the manner of stopping the motor quickly and the purpose of the safety devices.
- **Never use the machine when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the circular saw bench must only be carried out **by specialised personnel from the rental company.**

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs.** Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Safety goggles.** These must be worn when there is a risk of flying objects while cutting.
 - **Safety boots.** These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Safety helmet.** Must be worn when there is a risk of falling objects or blows to the head.
 - **Ear defenders.** These are obligatory when the noise exposure level $L_{Aeq,d}$ for the operator exceeds 87 dB(A).



3. BEFORE STARTING WORK

Risks

- Overturning of the machine.
- Falling at the same level.
- Falling from a height.
- Falling of the bench from a height.
- Falling of hanging loads.

Preventive measures

- Know the **site health and safety plan**. Keep up to date daily on the work carried out that may cause a risk (lack of handrails, etc), of other work being carried out simultaneously and the state of the working area.
- Place the bench on a surface that is stable, level, dry and free of materials and objects. Keep the bench surroundings as clean and dry as possible.
- **Do not place the bench near the edge of structures**, unless protection devices are in place (handrails, nets, etc).
- Do not place the machine under **areas in which hanging loads are moved** or in **areas through which machines or people pass**.

- Direct electrical contact.
- Indirect electrical contact.

- Before connecting the bench to electrical power, check that its voltage and frequency match those on the machine's data plate.
- The connection must be made using a **weatherproof plug**. Do not make direct connections by sticking the wires into the socket. Do not overload the socket by using adaptors.
- Check that the power point has a circuit breaker, magneto thermal switch and earthed base. Do not over-ride these devices.
- The **circuit breaker** may be of low sensitivity (300 mA) as all the concrete mixer's ground connections are earthed at less than 80 ohms. Otherwise, the circuit breaker must be of the high sensitivity type (30 mA). If there is any doubt over the suitability of the earth connection, consult an electrician.
- When extension cables are used, check that they are of a suitable cross section and have an earth wire. **Always check the continuity of the earth cable.**
- Keep the electrical cable unravelled and away from heat, puddles or water or oil, sharp edges and moving parts.
- Protect the electrical cable where it runs through areas transited by workers and vehicles. Wherever possible, keep the cable off the ground.



- Fire.
- Explosion.
- Falling of bench from a height.
- Falling of objects from a height.

- Do not use the saw bench outdoors **in bad weather** (rain, snow, insufficient light, high wind speeds, etc).
- Do not operate the saw bench in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).
- For movements at different levels, **do not hang the bench directly** from the crane hook using a sling. Place it on a suitable base (tray, etc).



4. DAILY CHECKS ON THE CIRCULAR SAW BENCH

- Check that the bench has no apparent structural damage and that the electrical panel is waterproof.
- Check that the blade safety guard and the drive shaft are in good condition and properly fixed.
- Check that a pusher stick and longitudinal and transverse guides are available and in good condition.
- Check that the reservoir is full of clean water and that the water supply system operated properly.
- Check that the electrical cable and plug are in good condition.
- Ensure that the information and warning plates are clean and in good condition (indication of direction of rotation, etc).



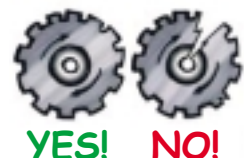
5. USING THE CIRCULAR SAW BENCH

Risks

- Cuts.
- Breakage of blade.
- Flying objects.

Preventive measures

- Before starting the machine, and periodically, visually check the **good condition of the blade**, turning it by hand with the motor stopped.
- Replace the blade when it is scratched, worn or has missing teeth (with the power cable disconnected). After replacement, check that the nuts and bolts are properly tightened and that spanners and adjustment tools have been removed.
- Only blades with diameters recommended by the manufacturer and designed for the machine's rotational speed may be used.



- Cuts.
- Breakage of blade.
- Flying objects.

- Check that the blade is of suitable material for the job.



- Inhaling of dust.

- **Do not allow other persons to remain** within the machine's radius of action both when start it and while cutting.
- Connect the electrical cable to the socket and press the starter switch.
- Check that the blade makes no strange noises and turns in the correct direction.
- **Do not remove or block the blade guard** while using the machine.
- **Do not leave the machine with the motor running when work has finished.**



- Cuts.
- Flying objects.
- Falling objects.
- Overturning of saw bench.

- Ensure that the water supply is running while the machine is operating.
- Always stand in front of the controls at the entry point of the material to be cut.
- Use the piece car for moving the piece to be cut.
- Do not push the pieces towards the blades by hand with the thumbs spread out. **Keep the hands as far as possible from the blade** (at least 20 cm).
- Always use the **pusher** with small pieces (wedges, etc) and when reaching the end of the piece. Never use the hands directly.
- With very heavy or large pieces, remember that cut pieces may fall from the bench and that the bench itself may tip.



- Cuts.
- Burns.
- Risks from the use of the bench by unauthorised persons.
- Falling of objects from a height.

- After finishing the job, press the stop button to stop the motor. Then unplug the electrical cable.
- **Do not raise the guard until the blade has completely stopped.**
- Do not touch the blade immediately after finishing the job. Wait for a safe time until it has cooled.
- Clean the bench with the motor stopped and the power cable unplugged. Never use pressurised water, use a damp cloth.
- Keep the saw bench in a clean and dry place, protected from the weather where it cannot be used by unauthorised persons.
- Do not leave it hanging from a crane hook during periods of inactivity.



1. GENERAL CONSIDERATIONS ON THE PNEUMATIC DRILL

- This leaflet gives the safety standards to be followed by operators of a **pneumatic drill (breaker, drill and pick)**.
- These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instruction manual. These instructions are in addition to the information and warning plates on the machine.
- **This leaflet must be read together with that for the mobile compressor.**
- A pneumatic drill is a machine designed for **cutting earth, lifting pavements, demolition, etc.**
- It must only be used by **persons authorised and suitably trained** in handling this type of machine.
- **The operator must familiarise himself with its handling** before using it for the first time. He must know the machine's possibilities and limitations and the purpose of the safety devices.
- **Never use the drill when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the circular saw bench must only be carried out **by specialised personnel from the rental company.**

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs.** Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Safety helmet and goggles.** Their use is obligatory given the risk of flying fragments with sharp edges.
 - **Safety boots.** These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Ear defenders.** These are obligatory when the noise exposure level $L_{Aeq,d}$ for the operator exceeds 87 dB(A).
 - **Gloves.** Must be work to avoid cuts from flying sharp fragments and to reduce vibration transmission.
 - **Mask with mechanical filter.** Must be worn when working with the drill in closed places with little ventilation.



3. BEFORE STARTING WORK

Risks

- Fall at same level.
- Fall at different level.
- Objects falling from above.
- Flying objects.
- Risks from transmission of vibrations to structures.

Preventive measures

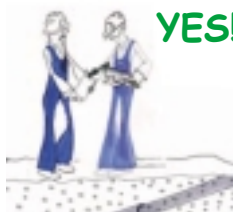
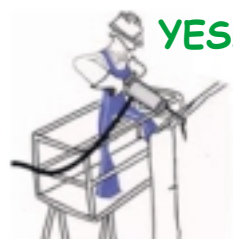
- Know the **site health and safety plan**. Keep up to date daily on the work carried out that may cause a risk (trenches, etc), of other work being carried out simultaneously and the state of the working area (dirt, presence of objects, etc).
- Work on a stable, level and dry surface. **Never work perched on walls, pillars, etc**. When working near the edge of structures, check that effective protection is installed (handrails, etc).
- If necessary, place suitable protections for the area transited by pedestrians or workers and vehicles (fences, signs, etc).
- Check that there is no risk of objects falling from above caused by work with the drill itself or work being carried out at higher levels.
- Inspect the surrounding ground for the possibility of landslides occurring due to the vibrations transmitted to the surroundings.

- Hose bursting.
- Risk of uncontrolled movement of hose.
- Flying objects.
- Fall at same level.

- Uses hoses and connections of the proper size, suitable for the working pressure and flow and that are physically strong enough for the area of use. **Do not use clips, wire or similar to join pneumatic hoses**.
- Prevent hoses lying on the ground from causing falls and from being run over by moving machines. Keep the hose untangled and away from heat, sharp edges and moving parts. Do not place materials on them.

- Direct electrical contact.
- Poisoning by inhaling toxic gases.
- Explosion.

- Know the type and contents of the material on which the drill is to be used. When there are **underground service conduits** (electricity, gas, etc), their locations and depths must be known precisely as well as the measures adopted to prevent contact with them.
- When the exact location of electricity and gas conduits cannot be known, metal detectors must be used to locate them.
- As a general rule, the pneumatic drill may only be used **to within 50 cm of the buried conduit**.



- Fire and explosion.
 - Do not use the drill in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).
- Exposure to noise.
 - Place the compressor no more than 10 m from the working area.
- Inhaling air-born dust.
 - Local ventilation systems are recommended when working in **closed spaces** (inside buildings, tunnels, etc).



4. DAILY CHECKS ON THE PNEUMATIC DRILL

- Check that the drill has no apparent structural damage or oil leaks and that the handles are clean.
- Check periodically (approximately every 2 hours) that the drill's oil reservoir is full.
- If the drill has an air outlet silencer, check that it is in good condition.
- Check that the air hose and its connections are not damaged or excessively worn.
- Ensure that the air hose is long enough to reach the work area easily.
- Check that the drill is clean, greased and sharp and that the chuck works properly.



5. USING THE PNEUMATIC DRILL

Risks

- Hose bursting.
- Flying objects.
- Risk of uncontrolled movement of hose and drill.
- Blows.
- Cuts.
- Wear or breakage of drill parts.

Preventive measures

- Firstly check that the working pressure of the compressor and the air flow supplied are compatible with the technical specifications of the pneumatic drill.
- Before connecting the drill to the compressor, check that the compressor valve is closed. Check that the hose is properly connected.
- Before operating the drill, check that the fitted tool is suitable for the work to be carried out (pick, drill or breaker).
- Check that the tool is properly fixed in the chuck. Do not forget to remove the tool adjuster, if necessary.
- Fit or change the tool with the compressor air outlet valve closed and without pressure in the hose. **Do not bend the hose to cut off the air.**
- Do not allow other persons to remain in the drill's radius of action **both when starting it and when using it.**



- Falls at same level.
- Drill falling on foot.
- Blows with the drill.
- Blows from uncontrolled movement of the hose.
- Exposure to high levels of vibration.
- Burns.

- Exposure to high levels of vibration.

- Blows from uncontrolled movement of the hose.
- Risks from uncontrolled movement of the drill.
- Risks from unauthorised use of the drill.

- To start the drill, first slowly open the compressor air outlet valve while holding the air hose. Then operate the drill by pressing the lever on its top.
- Do not use the drill when empty (without tool or with the machine raised).

- Handle the drill by gripping it with both hands and belt/chest height. Adopt a balanced posture with both feet, keeping them away from the working tool. Never support the tool on the feet even when the drill is stopped.

- **Do not force the lever with the drill running.** Effort must be made only in the direction of the drill's axis.

- Handle the drill without pulling or tugging on the hose. Keep it as straight as possible, avoiding the formation of sharp bends.

- Do not lift the drill from the work point until it has completely stopped. Do not touch the tool during or immediately after working.

- **Do not leave the drill stuck in the ground, wall or rock.**

- **Avoid the use of the drill continuously** by the same operator or for long periods. Organise the work considering the high levels of vibration issued by the machine. Rest periods should be set.

- To reduce the transmission of vibrations, hold the drill as lightly as possible but always safely and press it lightly. Do not support any part of the body (abdomen, etc) other than the hands on the drill.

- When working in the cold, gloves should be used to keep the hands as warm as possible - this will reduce the effect of the vibration.

- At the end of the job, firstly close the compressor air outlet valve. **Before disconnecting the hose from the compressor**, run the drill for a few seconds to discharge the air pressure in the hose.

- **Do not leave the drill on the ground with air pressure in the hose.**

- Keep the drill and the hose (avoiding sharp bends) in a clean, dry place protected from the weather and use by unauthorised persons.

NO!



YES!



NO!



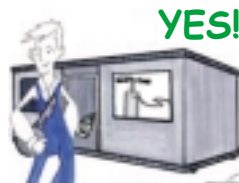
YES!



NO!



YES!



1. GENERAL CONSIDERATIONS ON THE PORTABLE DISC CUTTER

- This leaflet gives the safety standards to be followed by operators of a **portable disc cutter powered by an internal combustion engine**.
- These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instructions. These instructions are in addition to the information and warning plates on the machine.
- This machine has been designed for **cutting building materials and metals**.
- It must only be used for its designed purpose and always by **persons authorised and trained** in handling this type of machine.
- **The operator must be familiar with the handling** of the cutter before using it for the first time.
- **Never use the cutter when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the tamper must only be carried out **by specialised personnel from the rental company**.

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs**. Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Safety helmet and goggles**. These must be worn when there is a risk of flying objects while cutting.
 - **Gloves**. Must be work to prevent cuts from flying objects and to reduce the transmission of vibrations.
 - **Safety boots**. These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Ear defenders**. These are obligatory when the noise exposure level $L_{Aeq,d}$ for the operator exceeds 87 dB(A).
 - **Face mask with mechanical filter**. Its use will depend on the type of material (concrete, etc) and the type of cut (damp or dry).



3. BEFORE STARTING WORK

Risks

- Flying fragments.
- Cuts.
- Falling at same level.

Preventive measures

- **Check the work area** for dangers such as the presence of other workers, inflammable substances, electrical cables, etc. Keep the work area as clean as possible and free of objects, rubble, etc.
- **Do not allow other persons to remain** in the cutter's radius of action when starting and using it. If



- Fire.
- Explosion.

necessary, place suitable protection for areas transited by workers and vehicles.



- Do not operate the cutter in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).
- Do not use the cutter near inflammable materials (stacked boxes, etc). Keep sparks away from persons and objects.
- There must be an easily accessible **fire extinguisher** near the machine.
- Do not place the cutter with its engine hot on inflammable materials.



- Poisoning by inhaling carbon monoxide.
- Asphyxia.

- The machine may only be used in **closed spaces** (inside buildings, tunnels, etc) when good ventilation is assured before starting the engine. In these cases, the engine must be stopped when the cutter is not in use.



- Cuts.
- Falling at same level.

- Do not use the cutter with **insufficient lighting** or outdoors in bad weather (rain, snow, etc).

- Exposure to chemical pollutants.
- Inhaling dust.

- **Know the material to be cut.** Check that it contains no materials that may release toxic substances while being cut (asbestos, etc).
- **Damp cuts** should be made instead of dry ones if the material being cut will generate a lot of dust. Use breathing protection if this is not possible.

4. DAILY CHECKS ON THE PORTABLE DISC CUTTER

- Check that the cutter has no apparent structural damage or leaks of liquids.
- Check that the fuel level is sufficient and that the tank cap is firmly closed.
- Check that the engine air inlet and the exhaust silencer are clean and unblocked.
- Check that the guards on the transmission, clutch and cutting disc are properly located.
- Keep the handles clean, dry and free of oil, grease, etc.
- Ensure that the information and warning plates are clean and in good condition (direction of rotation of disc, etc).



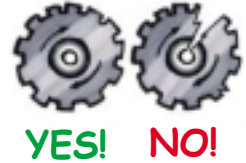
5. USING THE PORTABLE DISC CUTTER

Risks

- Breakage of disk.
- Flying parts.
- Cuts.

Preventive measures

- Before starting the engine, and periodically, visually check the **condition of the disc**. Replace it if it is scratched, worn or has missing teeth.
- After replacement, check that all parts have been fitted correctly, that the nuts and bolts are properly tightened and that spanners and adjustment tools have been removed before starting the engine.
- Check that the disk is the correct type for the material to be cut (concrete or metal). Only discs with diameters recommended by the manufacturer and designed for the machine's rotational speed may be used.



- Risks from uncontrolled movements (kickbacks, dragging, etc).
- Blows with the handle.
- Cuts.

- Place the machine firmly on the ground for starting. Check that the disc is not touching anything. Follow the manufacturer's instructions for starting.
- Do not release the starting handle suddenly when starting the engine. Release it slowly so that the cord returns to its initial position smoothly.
- Keeping the cutter in the air and placing yourself behind the disc, check that the accelerator can be operated properly. Check that the disc turns in the proper direction without strange noises.



- Fall at different levels.
- Falling at same level.
- Risks from uncontrolled movements (kickbacks, dragging, etc).
- Breakage of disk.
- Flying fragments and sparks.
- Cuts.
- Burns.

- Cut on a **stable and level surface**. Keep your balance at all times. **Do not cut** at above shoulder level, on stairs or scaffolds, in poorly accessible areas or in positions sloping steeply forward or backward.
- Move the cutter so that no part of the body comes within reach of the disc or near the engine exhaust silencer. Hold the cutter with both hands while cutting. Grip the front handle with the left hand and the rear one with the right hand.
- Set the disc guard in the lowest possible position. Slowly bring the disc close to the piece to be cut when starting the cut. Cut with a single continuous movement of the disc, forwards and backwards, at maximum speed.



- Exposure to high levels of vibration.
 - Risks from uncontrolled movements (cuts, blows, etc).
 - Burns.
 - Risks from the user of the cutter by unauthorised persons.
 - Fire.
 - Explosion.
- Do no make cuts at places on the piece where the disc could become trapped after cutting. Prevent the sliding of small and rounded pieces. **Pieces must never be held by the feet or by other persons.**
 - **Do not** use the upper part of the disc for cutting, press sideways on the disc, change the direction of the cut, use the sides of the disc for grinding, hammer with the disc while it is cutting or overturn the machine or carry it with the engine running.
 - Check that there are no stones, nails, screws, etc, in the area of the cut.
 - **Do not allow the machine to be used continuously** by the same operator or for long periods. Organise the work and set rest periods. Hold the cutter as lightly as possible compatible with its safe use.
 - Stop the cutter's engine during pauses in work and at the end of the job. **Do not leave the cutter with the engine running.**
 - **Do not place the cutter on the ground while the disc is moving.**
 - Do not touch the disc immediately after finishing the job. Wait for a prudent time until **the disc has cooled.**
 - Remove the disc and store the cutter in a clean, dry place protected from the weather and from use by unauthorised persons.
 - Fill with fuel in a well ventilated area. Place the machine on a level and stable surface. **The cutter's engine must be stopped and cold.**
 - **Do not smoke** and keep away from operations that may generate heat.
 - Do not over-fill the tank. The fuel must be poured into the tank with a **funnel**. If fuel is spilt, do not start the engine until the spill has been cleaned up.
 - If fuel cans are kept on the site, they must be stored in a place specifically reserved for them and signposted with a clearly visible label: **"DANGER, INFLAMMABLE PRODUCT."**



1. GENERAL CONSIDERATIONS ON THE ELECTRIC HOIST

- This leaflet gives the safety standards to be followed by **electric hoist** operators to operate it safely.
- These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instructions.
- These instructions are in addition to the information and warning plates on the hoist.
- A hoist is a machine designed for **moving and distributing materials vertically between different levels on a site**.
- Use it only for the purpose for which it has been designed.
- The hoist must be used only by **persons authorised and trained** in handling this type of machine.
- **The operator must be familiar with the handling of the hoist** before using it for the first time. He must know the functions of the buttons on the control panel, the machine's possibilities and limitations and the purpose of the safety devices.
- **Never use the hoist when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the tamper must only be carried out **by specialised personnel from the rental company**.

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs.** Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Safety helmet.** Must be worn when there is a risk of falling objects or blows to the head.
 - **Safety boots.** These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Safety gloves.** Obligatory when handling the load.
 - **Safety harness.** Obligatory when there are unprotected openings where the hoist is being used.



3. BEFORE STARTING WORK

Risks

- Falling at same level.
- Falling at different levels.

Preventive measures

- Know the **site health and safety plan**. Keep up to date daily on the work carried out that may cause a risk (lack of handrails, etc), of other work being carried out simultaneously and the state of the working area (obstacles, dirt, etc).

- Blows.
- Falling objects.

- The hoist control post must have **effective protective measures** (handrails, etc) and must allow the **visual control of the load's vertical movement**.
- If there are unprotected areas, the operator must wear a **safety harness** Fixed to the closest firm place (never to the hoist fixing gantry).
- Keep passageways **dry, clean and free of objects** for the supply and removal of materials on both the ground floor and higher levels.
- Cordon off the loading area on the ground floor to prevent persons from passing through it.



- Direct electrical contact.
- Indirect electrical contact.
- Falling load.

- Before connecting the hoist to power, check that the voltage and frequency match those on the hoist's data plate.
- The connection must be made using a **weatherproof plug**. Do not make direct connections by sticking the wires into the socket. Do not overload the socket by using adaptors.
- Check that the power point has a circuit breaker, magneto thermal switch and earthed base. Do not over-ride these devices.
- The **circuit breaker** may be of low sensitivity (300 mA) as all the concrete mixer's ground connections are earthed at less than 80 ohms. Otherwise, the circuit breaker must be of the high sensitivity type (30 mA). If there is any doubt over the suitability of the earth connection, consult an electrician.
- When extension cables are used, check that they are of a suitable cross section and have an earth wire. **Always check the continuity of the earth cable.**
- Keep the electrical cable unraveled and away from heat, puddles or water or oil, sharp edges and moving parts. Protect the electrical cable where it runs through areas transited by workers and vehicles.
- Do not use the hoist **in bad weather** (rain, snow, insufficient light, high wind speeds, etc).



- Fire and explosion.

- Do not operate the hoist in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).

- Falling machine.
- Falling load.

- Follow the manufacturer's instructions for fixing the hoist to the structure, either with a support between two floors or with a column and struts assembly on a surface. In both cases, the column must be placed on a firm and horizontal surface.
- If supports are used, if one of the ends rests on hollow arches or unfirm parts, the **load must be spread** using panels of sufficient thickness and area.
- If columns and supports are used, anchorings must be used to fix them. **Supporting the column with counterweights (sacks or similar) is not recommended.**



4. DAILY CHECKS ON THE HOIST

- Check that the hoist has no apparent structural damage and that the electrical panel is waterproof.
- Check the stability and verticality of the hoist's column and the proper fixing of the anchoring devices.
- Check the condition and arrangement of the motor casing, the hoist's safety devices (safety clip on the hook, end of stroke stop, etc) and that the lifting cable has no broken wires.
- Check that the electric cable and plug are in good condition.



5. USING THE HOIST

Risks

- Collapse of hoist.
- Falling load.

Preventive measures

- At the start of the day, fully raise and lower the hook without a load to check the proper operation of the hoist and safety devices.
- If a fault is found in the operation of the hoist, lower the load to the ground if possible and immediately stop the machine. In an emergency, press the emergency stop when the hoist has one.
- Take care to ensure the proper winding of the lifting cable during use.



- Blows with the load.
 - Collapse of hoist.
 - Falling objects from above.
-
- Unexpected movement of load.
 - Falling objects from above.
-
- Falling from height.
 - Blows with the load.
 - Crushing.
 - Falling objects from above.
 - Weather vane effect.
-
- Blows with the hook.
 - Falling load.
 - Unauthorised use.

- Before starting the hoist, check that there are no persons or objects protruding from the building's structure in the vertical travel of the load.
 - When the vertical travel of the load is beyond the view of the hoist operator, the aid of a **trained point man** must be requested.
-
- Loads to be lifted (supports, etc) must be handled on **suitable bases** (trays, etc) with points for fixing the hook or slings.
 - When **using lifting accessories** (forks, slings, etc) are used, check that they can support the weight of the load and are in good condition.
 - Before raising the load, the worker who hooks it on must **check that the hook safety clip is completely closed**, that the load is properly secured and that it cannot swing while being lifted.
-
- **Do not lift persons** with the hook or allow them to remain under the load.
 - **Do not lift loads heavier than the maximum shown** on the hoist's plate. If the weight of the load is unknown, carefully test lift it to confirm that the hoist can support the weight. If it cannot, don't continue to press the lift button.
 - Never lift loads with a large area vertically nor very large objects that may bump against the building.
 - **Loads must be lifted slowly and vertically.** Do not drag loads across the ground. Do not pull them at an angle nor balance them.
 - Use ropes or cables to position the load in the required place.
 - Before depositing the load, check that nobody is beneath it who could be trapped by it and that there are no objects that could unbalance it.
-
- At the end of the job, raise the hook to its highest position.
 - **Do not leave loads hanging on the hook** for long periods without use.
 - Unplug the electrical cable. **Never pull on the cable.**



1. GENERAL CONSIDERATIONS ON THE VERTICAL GOODS LIFT

- This leaflet gives the safety standards to be followed by operators of a **vertical goods lift**.
- These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instruction manual.
- These instructions are in addition to the information and warning plates on the machine.
- A goods lift is a machine designed for the **vertical transport and distribution of materials to different levels on a site**.
- The goods lift must be used only for its designed purpose by **persons authorised and suitably trained** in handling this type of machine.
- **The operator must familiarise himself with the handling of the goods lift** He must know the function of each control, the machine's possibilities and limitations and the purpose of the safety devices.
- **Never use the machine when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the circular saw bench must only be carried out **by specialised personnel from the rental company**.
- **Do not over-ride the electrical interlocking devices** on the goods lift and on its access gates on each floor.

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs.** Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Safety helmet.** Must be worn when there is a risk of falling objects or blows to the head.
 - **Safety boots.** These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Safety gloves.** When handling the load.



3. BEFORE STARTING WORK

Risks

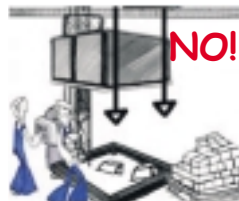
- Falling at same level.
- Falling at different levels.

Preventive measures

- Know the **site health and safety plan**. Keep up to date daily on the work carried out that may cause a risk (lack of handrails, etc), of other work being carried out simultaneously and the state of the working area.

- Blows.
- Falling objects.

- The control panel must be located where **the operator has visual control of the load's vertical movement** and where **it cannot be operated from inside the goods lift platform.**



- Direct electrical contact.
- Indirect electrical contact.

- Keep passageways **dry, clean and free of objects** for the supply and removal of materials on both the ground floor and higher levels.
- Cordon off the loading area on the ground floor to prevent persons from passing through it.

- Before connecting the goods lift to power, check that the voltage and frequency match those on the control panel data plate.



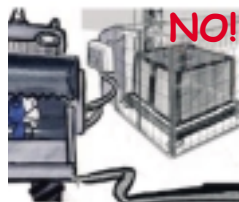
- The connection must be made using a weatherproof plug. Do not make direct connections by sticking the wires into the socket. Do not overload the socket by using adaptors.

- Check that the power point has a **circuit breaker, magneto thermal switch and earthed base.** Do not over-ride these devices.



- The circuit breaker may be of low sensitivity (300 mA) as all the concrete mixer's ground connections are earthed at less than 80 ohms. Otherwise, the circuit breaker must be of the high sensitivity type (30 mA). If there is any doubt over the suitability of the earth connection, consult an electrician.

- When extension cables are used, check that they are of a suitable cross section and have an earth wire. **Always check the continuity of the earth cable.**



- Keep the electrical cable unravellled and away from heat, puddles or water or oil, sharp edges and moving parts. Protect the electrical cable where it runs through areas transited by workers and vehicles.

- Fire and explosion.

- Do not operate the goods lift in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).

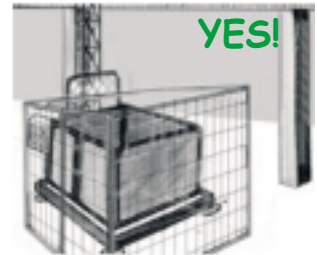


- Falling load.

- Do not use the hoist **in bad weather** (rain, snow, insufficient light, etc) or in wind speeds greater than **55 km/h.**

4. DAILY CHECKS ON THE GOODS LIFT

- Check the stability and verticality of the goods lift mast and the proper fixing of the anchorings.
- Check that the goods lift has no apparent structural damage and that the electrical panel is waterproof.
- Check that there are side protections on the goods lift platform and doors on the various levels.
- Check that there are safety devices (electrical interlocking on the doors, stroke end stops, etc).
- Check that the electrical cable, the plug and the cable drum are in good condition.
- Keep the goods lift platform clean and dry.
- Ensure that that the information and warning plates on the goods lift are clean and in good condition.
- At the start of the day, fully raise and lower the empty goods lift to check that:
 - The goods lift moves without making unusual noises or vibrations, stopping at the correct height at each level.
 - The end stroke stops operate properly at the upper and lower limits.
 - The goods lift cannot move when the ramps, handrails, access gates, etc, are open.
 - The electrical cable rolls and unrolls onto and off the cable drum properly.
 - The emergency stop and the anti-crush bar operate correctly.



5. USING THE GOODS LIFT

Risks

- Falling at different levels.
- Objects falling from above.
- Blows.
- Trapping.
- Objects falling from above.

Preventive measures

- Keep the goods lift access gates and ramps closed when not loading or unloading material.
- The goods lift is not designed to carry persons. **Do not allow persons to remain on the lift while it is moving.**
- The goods lift operator must remain in a **protected area** or outside the area to which objects could fall from the platform.
- Before starting the goods lift, check that there are no **persons or objects** protruding from the building's structure in the vertical travel of the load.

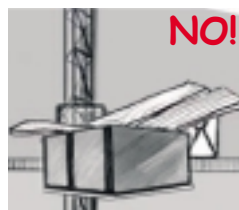


- Collapse of goods lift platform and/or structure.
 - When the travel of the cage is beyond the operator's field of vision, starting the goods lift must operate a **warning signal**, either acoustic or a light.
 - Pay attention to the proper rolling and unrolling of the cable on the cable drum when the goods lift is operating.

- Collapse of goods lift platform and/or structure.
 - If a fault is found in the operation of the hoist, lower the load to the ground if possible, unload the material and stop the machine immediately. Press the emergency stop button in the event of imminent danger.
 - **Do not lift loads heavier than the maximum shown on the goods lift.**
 - If the platform is overloaded, the load limiter will stop the lift from operating. To re-start, the weight of the load must be reduced until the machine runs perfectly.
 - **Spread the weight of the load** evenly on the goods lift platform.
 - Do not allow the load **to protrude from the sides of the cage.**
 - **Fix the load** when it might move in the cage or exceed its height.
 - If small, heavy loads must be lifted, place them in the centre of the platform as close as possible to the vertical mast.

- Falling at same level.
 - Do not place panels, cloths or similar in the cage or lift bulky loads that greatly increase **wind resistance.**

- Collapse of the goods lift.
 - At the end of the job, lower the goods lift to the ground.
 - **Block the on switch** to prevent use by unauthorised persons.
 - Unplug the electrical cable and disconnect it from the cable drum. Do not pull on the cable to unplug it.
 - Keep the cable in a clean, dry place protected from the weather.
- Risks of use of goods lift by unauthorised persons.



1. GENERAL CONSIDERATIONS ON THE MOBILE COMPRESSOR

- This leaflet gives the safety standards to be followed by the operator of a **mobile compressor with internal combustion engine**.
- These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instructions.
- These instructions are in addition to the information and warning plates on the machine.
- **Read this leaflet together with that for the pneumatic tool to be used.**
- A compressor is a machine designed to **provide compressed air to pneumatic machines such as drills, screwdrivers, vibrators, etc.**
- It must be used only by **persons authorised and trained** in handling this type of machine.
- **The operator must be familiar with the handling** of the compressor before using it for the first time. He must know the function of each switch, the machine's possibilities and limitations, the manner of stopping the motor quickly and the purpose of the safety devices.
- **Never use the compressor when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the circular saw bench must only be carried out **by specialised personnel from the rental company**.

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs.** Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Ear defenders.** These are obligatory when the noise exposure level $L_{Aeq,d}$ for the operator exceeds 87 dB(A).
 - **Safety boots.** These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Safety helmet.** Must be worn when there is a risk of falling objects or blows to the head.
 - **Reflective clothes or waistcoat.** Obligatory when vehicles are working nearby.



3. BEFORE STARTING WORK

Risks

- Falls at same level.
- Falls at different levels.

Preventive measures

- Know the **site health and safety plan** and follow the **safety co-ordinator's** instructions, especially regarding the **location of the compressor**. Keep up to

- Overturning of the compressor.
- Falling of compressor onto persons.
- Trapping.

date daily on the work carried out that may cause a risk, of other work being carried out simultaneously and the state of the working area.

- The compressor must be **approved** for towing on public roads, with all the legally-required signalling and lighting equipment.
- Use the lifting and fixing anchorings on the machine for moving it over long distances. **Follow the recommendations of the rental company.**
- Place the compressor on **a stable, level surface** that is as clean and dry as possible and free of materials and objects.
- Do not place the machine in an area transited by machinery or persons or in areas under hanging loads.
- If necessary, place suitable protections for the area transited by pedestrians, workers and vehicles.
- Do not place the compressor **near the edges of slopes, trenches, structures, etc**, unless there are effective protective measures (handrails, nets, etc).



- Risks arising from the uncontrolled movement of the compressor.

- Once the compressor is in place, immobilise it with the **parking brake** and by chocking the wheels.
- Adjust the levelling pivot to keep the drawbar as horizontal as possible. **A slant of more than 25% is not recommended.**



- Asphyxia.
- Poisoning from inhaling carbon monoxide.

- The machine must only be used in **closed spaces** (inside buildings, tunnels, etc) when good ventilation is assured before starting the engine. In these cases, the engine must be stopped when the machine is not in use.
- Do not allow exhaust fumes to fall on any person.

- Fire.
- Explosion.

- Never use the compressor in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).
- Place the compressor at least 1 m from walls and equipment.



- Exposure to noise.

- Place the compressor at least 10 m from the working area.

4. DAILY CHECKS ON THE COMPRESSOR

- Check that the compressor has no apparent structural damage or leaks of liquids.
- Check that the tyre pressures are correct and that there are no cuts in their treads.
- Check that the fuel, engine oil and cooling water (if applicable) levels are suitable.
- Check that the parking brake and the drawbar levelling pivot function correctly.
- Check that the air inlet filter, safety valve and discharge device are not blocked.
- Check the condition of the valves and connections and for lack of cracks or wear in the hose.



5. USING THE COMPRESSOR

Risks

- Cuts.
- Blows from uncontrolled movements of the hose.
- Engine overheating.
- Exposure to noise.
- Cuts.
- Blows with the hose.

Preventive measures

- Before starting the engine, check that **the air outlet valves are closed** and that nobody can handle the compressor.
- Follow the manufacturer's instructions for starting the compressor's engine. Once running, check that the pilot lights are off, the engine is not making any unusual noise, there is no excessive vibration nor large temperature increase.
- The compressor's operating pressure and speed must always remain within the nominal operating values given by the manufacturer.
- While the engine is running, **the compressor's covers or doors must remain closed**. Nobody must be allowed to remain close to the machine without wearing suitable ear defenders.
- Before connecting the work tool, check that **the compressor's working pressure and flow match those of the tool, hoses and couplings** to be used.
- Never connect a pneumatic tool to the compressor which has no data plate or one that has been erased.
- To start work, first connect the hose without forcing the air outlet valve and then connect the tool to the hose. Finally, hold the hose and smoothly open the compressor's air outlet valve.



- Cuts.
 - **Do not use compressed air from the compressor for uses other than those specified by the manufacturer.** For example, cleaning clothes, aiming the air jet at other persons, using it to supply air for breathing, etc.

- Blows from uncontrolled movements of the hose.
- Risks from the use of the compressor by unauthorised persons.
 - At the end of the job, firstly close the compressor's air outlet valve.
 - Before disconnecting the tool and hose from the air outlet valve, operate it for sufficient time to **discharge the pressure in the system.**
 - Finally, stop the engine following the manufacturer's instructions and block the compressor to prevent its use by unauthorised persons.



6. CHECKING THE STATE OF THE COMPRESSOR

Risks

Preventive measures

- Uncontrolled movement of the hose (whiplash).
- Bursting.
 - Do not inflate the tyres above the **pressure specified by the manufacturer.** When inflating tyres, keep away from the connection point. A bursting hose or nozzle could cause a whiplash.

- Fire.
- Explosion.
 - Fill with fuel in well-ventilated areas with the engine **stopped** and the battery disconnected.
 - **Do not smoke** and keep away from operations that may generate heat. **Do not keep greasy cloths or inflammable materials** near the exhaust pipe.
 - Fuel must be poured into the tank with a **funnel.** If fuel is spilt, do not start the engine until the spill has been cleaned up.
 - **Do not keep greasy cloths or inflammable materials** near the exhaust pipe.
 - A **fire extinguisher** must be available in an accessible place near the machine.

- Burns.
- Splashes or contact with corrosive liquids.
 - **Do not touch the exhaust pipe or other parts of the engine** while the engine is running or still hot.
 - Top up the engine oil and coolant with the engine stopped and cold.



1. GENERAL CONSIDERATIONS ON THE MOBILE GENERATOR

- This leaflet gives the safety standards to be followed by the operator of a **mobile generator**. These are general standards, so that some recommendations may not apply to a specific model.
- This leaflet **does not replace** the manufacturer's instructions. These instructions are in addition to the information and warning plates on the generator. **Read this leaflet together with that for the electric tool used.**
- All dispositions in the low voltage regulations must be complied with when supplying electricity to installations.
- This machine is designed to **supply electricity** on sites or in places where mains power is inaccessible.
- It must only be used for the purpose for which it was designed and always by **persons authorised and trained** in handling this type of machine.
- **The operator must be familiar with the handling** of the generator before using it for the first time. He must know the function of each switch, the machine's possibilities and limitations, the manner of stopping the motor quickly and the purpose of the safety devices.
- **Never use the generator when any fault is found** during the daily inspection or in use. Report it immediately to the machine's supervisor or the rental company.
- Maintenance, repair or any modifications to the circular saw bench must only be carried out **by specialised personnel from the rental company**.

2. PERSONAL SAFETY EQUIPMENT

- **Wear working clothes with adjustable cuffs.** Chains, loose clothes, etc, that could be trapped are not recommended.
- The safety equipment shown in the **site health and safety plan** must be worn in the situations described in it. The following describes the recommended safety equipment:
 - **Ear defenders.** These are obligatory when the noise exposure level $L_{Aeq,d}$ for the operator exceeds 87 dB(A).
 - **Safety boots.** These are obligatory on the site. The soles must be puncture-proof and anti-slip.
 - **Safety helmet.** Must be worn when there is a risk of falling objects or blows to the head.
 - **Reflective clothes or waistcoat.** Obligatory when vehicles are working nearby.



3. BEFORE STARTING WORK

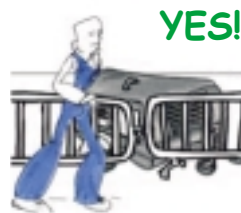
Risks

- Falls at the same level.
- Falls at the different levels.

Preventive measures

- Know the **site health and safety plan**. Keep up to date daily on the work carried out that may cause a risk (openings, etc), of other work being carried out simultaneously and the state of the working area (dirt, etc).

- **Overturning of the machine.**
 - **Trapping.**
- The generator must be **approved** for towing on public roads, with all the legally-required signalling and lighting equipment.
 - Do not place the generator near the edges of slopes, trenches, structures, etc, unless there are effective protective measures (handrails, nets, etc).
 - Do not place the machine in an **area transited by machinery or persons or in areas under hanging loads**. If necessary, place suitable protections for the area transited by pedestrians, workers and vehicles.
- **Risks arising from the uncontrolled movement of the generator.**
- Place the generator on a **stable, level surface that is as clean and dry and free of objects**.
 - Once the generator is in place, immobilise it with the **parking brake** and by chocking the wheels.
 - Adjust the levelling pivot to keep the drawbar as horizontal as possible. **A slant of more than 25% is not recommended**.
- **Exposure to noise.**
- Do not locate the generator near where connected electrical equipment is being used or near where other workers are working.
- **Indirect electrical contacts.**
- Do not use the generator in **dusty, damp or wet places**. If the generator must work outside, it must be protected from rain, snow, etc.
 - **Do not dampen the generator or handle it with wet hands**.
- **Asphyxia.**
 - **Poisoning from inhaling carbon monoxide.**
- The generator must only be used in **closed spaces** (inside buildings, tunnels, etc) when good ventilation is assured before starting the engine. In these cases, the engine must be stopped when the generator is not in use.
 - Do not allow exhaust fumes to fall on any person.
- **Fire.**
 - **Explosion.**
- Never use the generator in **potentially explosive atmospheres** (near to stores of inflammable materials such as paint, fuel, etc).
 - Place the generator at least 1 m from walls and equipment when in use.



4. DAILY CHECKS ON THE GENERATOR

- Check that the generator has no apparent structural damage or leaks of liquids.
- Check that the tyre pressures are correct and that there are no cuts in their treads.
- Check that the fuel, engine oil and cooling water levels are suitable.
- Check that the engine ventilation holes are clean and that the air inlet filter is not blocked.
- Check that the parking brake, the drawbar levelling pivot and the emergency stop function correctly.
- Check that the generator is clean of oils and inflammable materials.
- Check that the alternator and output bases are watertight.
- Check that the ground connection is in good condition and correctly connected to earth.



5. USING THE GENERATOR

Risks

- Damage to the generator.
- Engine overheating.
- Trapping in moving parts.

Preventive measures

- Before starting the engine, check that the alternator starter switch is off and that nothing is connected to the output bases.
- Check that nobody is working on the interior of the generator.
- Follow the manufacturer's instructions for starting the generator's engine. Once running, check that the pilot lights are off, the engine is not making any unusual noise, there is no excessive vibration nor large temperature increase.
- Finally, operate the alternator switch and check that the voltage and frequency match those on the generator's data plate.



- Exposure to noise.

- While the engine is running, **the generator's covers or doors must remain closed**. Nobody must be allowed to remain close to the machine without wearing suitable ear defenders.

- Damage to the generator.
- Explosion.
- Fire.
- Direct electrical contacts.

- Before connecting the electrical equipment, check that the voltage and frequency at the generator's output bases match those on its data plate.
- Do not connect the generator to electrical equipment that has no data plate or one that has been erased. Never connect the generator to a power socket.



YES! NO!

- Damage to electrical equipment.
- Risks from the use of the generator by unauthorised persons.

- The total power consumption of the installation or electrical equipment connected must not exceed the maximum power supplied by the generator.
- The installation or equipment must be connected using standard waterproof plugs. **Do not connect by pushing sires into the sockets.**



- **Do not leave the generator with the engine running** when the job is finished.
- At the end of the job, firstly disconnect the equipment connected to the output bases and then switch off the alternator switch.
- Finally, stop the generator's engine, following the manufacturer's instructions. In the event of imminent danger, press the emergency stop directly.
- **Block the generator** to prevent its use by unauthorised persons.



6. CHECKING THE STATE OF THE GENERATOR

Risks

- Uncontrolled movement of the hose (whiplash).
- Bursting.

Preventive measures

- Do not inflate the tyres above the **pressure specified by the manufacturer**. When inflating tyres, keep away from the connection point. A bursting hose or nozzle could cause a whiplash.



- Fire.
- Explosion.

- Fill with fuel in well-ventilated areas with the engine **stopped** and the battery disconnected.
- **Do not smoke** and keep away from operations that may generate heat. **Do not keep greasy cloths or inflammable materials** near the exhaust pipe.
- Fuel must be poured into the tank with a **funnel**. If fuel is spilt, do not start the engine until the spill has been cleaned up.
- A **fire extinguisher** must be available in an accessible place near the machine.



- Burns.
- Splashes or contact with corrosive liquids.

- **Do not touch the exhaust pipe or other parts of the engine** while the engine is running or still hot.
- Always top up the engine oil and coolant with the engine stopped and cold.

Direcciones de MCA-UGT

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S. C.Horta Nord-Camp Turia, Camp Morvedre	Ausías March, 12 - 46133 Meliana (Valencia)	961 49 32 05

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S. C., Horta Valencia	Arquitecto Mora, 7-4º - 46010 Valencia	96 388 41 10



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Nombre..... NIF

Calle/Plaza.....

Código Postal Localidad

Provincia Telf.

Datos Personales

Situación Laboral.....Oficio o/y Ocupación.....

Empresa.....Actividad de la empresa....

Centro de Trabajo.....Calle/Plaza.....Código Postal

LocalidadProvincia.....

Datos Laborales

Telf.

Autorizo a que hasta nuevo aviso atiendan la presente orden de domiciliación bancaria de la cuota sindical de MCA-UGT.

Datos Bancarios

TITULAR DE LA CUENTA

Código de la Cuenta

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Fecha y Firma:



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