Concrete Mixer

Introduction

A concrete mixer (also commonly called a cement mixer) is a device that homogeneously combines cement, aggregate such as sand or gravel, and water to form concrete. A typical concrete mixer uses a revolving drum to mix the components.

For smaller volume works, portable concrete mixers are often used so that the concrete can be made at the construction site, giving the workers ample time to use the concrete before it hardens.

Identified Risks and Hazards

General hazards that may arise when operating electrically powered equipment include:

- moving and rotating parts
- inhalation of fumes and dust particles
- electrocution from power faults, faulty equipment or incorrect use
- ejection of waste materials
- burns from hot materials or friction
- hand and finger injuries from rotating spindles or pulleys
- electrocution from equipment or cords
- squash, pinch and crush injuries

- Hearing (noise levels may be high and constant)
- Electrical (water will be present in the work area)
- Breathing (cement dust can cause respiratory issues)
- Explosion (sparks may ignite dust and fumes)

Location Considerations

Keep the work area clean and well lit. Keep the power cords away from any sources of water which can create electrical dangers.

Do not operate the mixer in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. The electric motor can create sparks which may ignite the dust or fumes.
Keep visitors away from the work area. All visitors and onlookers, especially children and infirm persons, should be kept well away from where you are working.

Make sure that the work area is free of all tripping hazards.

Ensure that for mixers that are towable behind a motor vehicle, the traffic laws are followed.

**Pre-operational Safety**

Inspect the work site before operating the concrete mixer.

Make sure the mixer is on level ground. If the ground is not level, make sure that the wheels are appropriately chocked and restrained to prevent any unplanned movement.

Electric models - ensure that power leads are appropriately connected and protected using a RCD.
Petrol models - check the fuel and oil levels.

Ensure that the mixer drum is empty and clean.

Check the condition of the mixer before turning it on. Keep the guards in place and in good working order.

Check the power cord. Never use a faulty or damaged power cord.

Use personal safety equipment. Wear eye and breathing protection.

Check the tire pressures on the mixer. You need to ensure that the tyres are appropriately inflated..

Do not wear loose clothing, neckties, rings or bracelets which might get caught in the moving parts. Restrain long hair.

Operating Safety

Do not operate the mixer while under the influence of drugs, alcohol, or any medication that could affect your ability to use it properly.

Do not smoke in the vicinity of petrol.

Persons working with the machine should not be distracted.

Periodically check that all nuts, bolts and other fixings are properly tightened.

Always wear the following PPE while operating the cement mixer:

- goggles for eye protection
- earplugs
- protective gloves
- steel toe capped boots

Look after your back and shoulders by not trying to pick up too much
material when shoveling material into the mixer bowl.

Avoid twisting your torso when shoveling material into the mixer. Move your feet.

Always operate the concrete mixer with guards correctly fitted.

Do not leave the concrete mixer running unattended.

Ensure that the electric mixer is turned off at the power supply outlet before disconnecting or connecting the power cables.

**Maintenance**

Ensure the cement mixer is always unplugged from a power supply before the motor cover is removed.

The mixer is fitted with a preset tensioned belt. Just check for visual wear and tear. A touch of grease on the spindle may be required.

Always check all nuts and bolts are secure before use.

**Daily Maintenance:**

- Check engine oil on petrol models
- Check the Residual Current Device (earth leakage unit)
- Check electrical leads for damage
- Clean out mixing drum at the end of the task.
  Do not let the mix set inside the mixing drum.

**Weekly Maintenance**

- Clean air filters on petrol models.
- Grease drum drive crown wheel.

**Operating Procedures**

**Drum tilting**

When tilting handle has been disengaged, the user has the load. The spring-loaded tilting handle with locking lug provides an easy positive control of the drum which can be locked in the mix, discharge and stored position.
The drum is locked in position by the lug on the self-locating tilting handle which engages into the locking plate on the mixer frame. To tilt the drum, withdraw the tilting handle to disengage the locking lug. This then allows the tilting handle and drum to be turned in the same direction.

To retain the drum in position, aligning the lug with the hole, release the tilting handle a little while retaining the drum. Rotate the tilting handle until the locking lug engages into the locking plate on the mixer frame.

**Loading**

Completely unwind an extension cord. Connect it to the concrete mixer first before plugging in the power supply.

Always start the mixer before loading the drum. Load the drum while it's rotating.

Ensure material is not all 'dumped' into the mixer at once. Trickle the material steadily over the mixing blades instead to avoid the material from firmly sticking to the back of the drum.

A built-in thermal protector has been built into the motor to prevent it from overheating. The thermal protector restores automatically when the motor cools down.

For best loading results, proceed as follows:
• Add the required amount of gravel into the drum.
• Add the required amount of sand into the drum.
• Add the required amount of cement into the drum.
• Pour the required amount of water into the drum.

**Warnings**

Do not let the shovel mouth or any other devices enter the drum mouth during loading.

Never place your hands inside the revolving drum.

Place the mixer as close as possible to the work area.

Do not move the mixer when loaded. The front handle is only to be used to move the mixer when the drum is empty.