

Toolbox Talk

Using an Electric Cement Mixer

Cement mixers have been used in construction projects for many years and take a lot of the hard work out of this activity.

Cement mixers consist of:

- A drum with deflectors inside to give a good mixing
- A prime mover and gear/drive mechanism, protected under a cover.
- A means of tilting the drum (whilst rotating) to enable the mix to be tipped into a wheel barrow or other means of transport.



Setting up the mixer:

- Site the mixer on level ground and away from public areas where dust, noise and spillage could be a problem.
- To assemble; with the drum face down on the ground, thread the two parts of the stand onto the spigot on the bottom of the mixer. Grip the mixer handles and lift the mixer into an upright position (this may be a two-person lift).
- Make sure the mixer is stable on the stand.
- Place the mixer on boards or tarpaulin so the spillage does not contaminate the ground.
- Ensure there are sufficient materials to hand and these are positioned to minimize twisting and lifting.
- Make sure there is an (in date) eye wash nearby.

Pre-start checks:

- Check the cables are not damaged and routed safely.
- Make sure operators are briefed and know how to stop the mixer.
- Make sure the operators know the mix quantities.
- Make sure operators have the correct PPE.
- Check area around the mixer is clear with no obstructions around rotating parts.

Starting the mixer:

- Ensure the mixer is empty and the drum is in the mixing position.
- Operate the start button.

Key points:

Always familiarise yourself with the exact piece of equipment to identify key components.

Make sure you know how to stop it in an emergency.

Health and Safety:

Hazards from mixer;

- Pinch points between mixer and drum.
- The rotating drum can snatch anything placed inside, so keep arms and tools outside.

COSHH

- Lime and cement can give rise to burns and dermatitis and can lead to respiratory problems if dust is inhaled.

Manual handling

- Position materials to minimize lifting, twisting and having to walk to and from mixer.
- Rotating drum will snatch a shovel if it enters the drum.
- Don't overdo, take frequent breaks to avoid fatigue.
- Lifting the mixer onto the stand is a two person lift.

Personal Protective Equipment (PPE)

- Additional PPE; dust mask, safety eyewear, gloves, long sleeves and ear defenders.
- No loose clothing.

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Using an Electric Cement Mixer (contd)



TYPICAL MORTAR AND CONCRETE MIXES

These are “typical” mixes; always follow any site specific instructions for mixes.

A. Lime Mortar Mix:

Hydraulic Lime Mortar (NHL5)	Sharp Sand	Building Sand (smooth)	Water	Notes
1 part	1½ parts	1 part	Enough to give correct consistency, add slowly, bit at a time whilst mixer is rotating	Cover up with wet sack cloth at end of day, finish joints whilst “green” with flat trowel for traditional flat joints

B. Cement Mortar Mix:

Note: Plasticiser can be added, follow manufacturer’s instructions

Portland Cement	Sharp Sand	Building Sand (smooth)	Water	Notes
1 part	Nil	3 or 4 parts	Enough to give correct consistency add slowly, bit at a time whilst mixer is rotating.	Cover up at end of day, finish joints whilst “green” with a flat trowel or a radius tool (“frenchman”) for

C. Concrete Mix:

Note:

1. The strength of a concrete can be adjusted by increasing/decreasing the amount of cement that is added.
2. Generally sand and stone will be supplied together as ballast, so the ratios below will be combined.

Portland Cement	Sharp Sand	Coarse Aggregate (max size 10mm)	Water	Notes
1 part	2 parts	3 parts	Enough to make it workable, max of 15%	Mix the dry ingredients first. Cover up at end of day,

General Points:

- With concrete, the more water that is added the weaker the concrete, however the concrete workability increases with water content. So there may have to be a compromise.
- Proper additives (plasticisers) added to cement mortar make it more workable. Washing-up liquid must not be added.