Belt Elevator Instructions

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1. Purpose of Equipment

Belt Elevators are intended for the carriage of masonry products. Bricks may be transported on a belt brick Elevator or belt block Elevator, while blocks may be transported on a belt block Elevator only.
Belt Elevators are **not** intended for the carriage of humans, animals, mortar or other products.

2. Safety

2.1 Warnings

- Read and understand these instructions first before setting up or operating this equipment;
- Keep these instructions accessible near the equipment;
- Before beginning work, one should become familiar with the working environment;
- Do not alter, modify or change the equipment;
- Do not use the equipment if there is any damage or unusual performance. Isolate the equipment as described in Chapter 9.1 Emergency Shutdown;
- Secure the equipment against slippage or fall to a structure capable of sustaining the forces described in Chapter 3;
- Do not operate the equipment if there is a risk of people being endangered by the load or the effects of using the equipment;
- Barricade the area around the equipment and prevent people from walking underneath;
- Observe National and State Plant Regulations and Occupational Health and Safety Regulations.

2.2 Certification

Certification to operate this equipment is not required. The person with control or management of the workplace must ensure that:

- The Operator is at least 18 years old;
- The Operator is competent to operate the equipment

2.3 Incident Notification

The employer, as defined by the Regulations referred to below, who has management or control of the workplace must be aware that they may have an obligation to notify the WorkCover Authority of any incidents involving this equipment. Refer to the Occupational Health and Safety Act and the Occupational Health & Safety (Incident Notification) Regulation(s) applicable in your State

2.4 Hazard Assessment

Please note that this checklist is indicative only. Users must perform their own Hazard Assessment subject ti the intended siting and use of the equipment.

Hazard	Risk	Control
Crushing or striking by the equipment during INSTALLTION or REMOVAL	**Probability:** Remote to Occasional **Consequence:** Marginal to Fatal	· Barricade the work area before installation or removal to prevent unauthorised personnel from entering the area; · Fold or unfold the Elevator on firm level ground only, to reduce the risk of the sections toppling or collapsing during this process; · When unfolding or folding-up an Elevator, ensure that the folding sections are firmly gripped and that the personnel involved have sufficient strength to maintain their hold. Refer to Chapter 3 Specifications for section information; · A minimum of two people should be used to install or remove an Elevator due to the section length & weight; · Ensure that here are no overhead obstructions that may be struck by the folding sections leading to a loss of stability or grip; · Ensure that body parts are clear of the section joins when unfolding and clear of the section tops when folding up; · Move the equipment by picking up the opposite end to the motor by the lowest handle provided; · Do not wheel the equipment up or down severe slopes without implementing a means to prevent the equipment running away.
Crushing, striking by the equipment collapsing or entanglement during USE	**Probability:** Remote to Occasional **Consequence:** Marginal to Fatal	· Ensure that the equipment discharge end is secured to the structure to prevent slippage or falling during use; · Apply the wheel locks before use; · Ensure locking pins are fitted to joining pins; · Barricade the area around the equipment and prevent personnel from walking or working underneath; · Keep body parts and clothing clear of the moving belt; · Switch off the Elevator and remove power before attempting to clear any obstructions from the belt or sections.
Crushing, or striking by materials falling from the equipment	**Probability:** Remote to Occasional **Consequence:** Marginal to Fatal	· Do not put materials on the belt that is larger than the belt or it may become dislodged during conveyance and fall from the Elevator; · Do load the belt with buckets or containers holding solids, liquids or semi liquids that are specifically designed for use with this equipment; · Do not load the Elevator without have a second person unload the belt before products reach the end of the belt. · Ensure that the Elevator is level in cross-section; · Do not exceed 50° inclined angle.
Falling from height during installation, use or removal	**Probability:** Remote **Consequence:** Critical to Fatal	· Barricade the area at height where the equipment is installed; · Use height safety equipment if barricading is absent or ineffective.
Musculoskeletal disorders (strains & sprains)	**Probability:** Remote to Occasional **Consequence:** Marginal to Critical	· Ensure that good body posture and work practices are followed when unfolding, lifting, lowering or folding up the Elevator. · Avoid twisting when lifting or lowering sections or back strain may occur.
Electrocution	**Probability:** Remote to Occasional	· Do not use the equipment if there is damage to any electrical component; · Do not use the equipment in rainy or moist conditions;

	Consequence: Marginal to Fatal	· Do not open any electrical equipment cover; · Extension leads used must have a minimum 10A rating (20m max length); · Do not use extension leads longer than 30m (20A rating); · Ensure that the extension lead is free of moisture, securely connected to the equipment and is off the ground; · Ensure the Elevator is properly grounded and connected to a supply fitted with a current sensing device
Explosion	**Probability:** Remote **Consequence:** Critical to Fatal	· Do not use the equipment in an environment where there may be explosive gases or liquids present.

3. Specifications

Fig. 1 Folded Elevator

Fig. 2 Unfolded Elevator

Model	**7m brick**	**9m brick**	**7m block**	**9m block**
Length – folded	2m	3m	2m	3m
Length – unfolded	7m	9m	7m	9m
Belt Width	150mm	150mm	200mm	200mm
Max Angle	50 degrees			
Max Height	4500mm	7000mm	4500mm	7000mm
Mass	110Kg	140Kg	140Kg	185Kg
Section Mass	20Kg	30Kg	30Kg	45Kg
Power Supply	240v 10Amp			

4. Description

Belt Elevators consists of a series of sections that, when joined together, form a long arm with a motor driven endless belt designed to transport masonry products (see Fig.2)
The belt has cleats and a rough finish that enables an angle of incline up to 50°.
Products are placed on the belt at the motor end and are transported along the belt. Products may be unloaded at any point along the belt.

5. Installation

5.1 Transport

• The Elevator may be transported on any vehicle with a bed long enough to take the folded length;
• Wheel locks must be applied at the Elevator securely fastened to the vehicle;
• Belt Elevators are not designed to be towed behind a vehicle.

5.2 Pre-Installation Checks

• Ensure that there is sufficient clear room for the unfolded length of the Elevator;
• Ensure that there are no tripping hazards in the area required to unfold the Elevator;
• Ensure all personnel involved in the installation understand the system of work to lift up the Elevator to the required height, where personnel are not required to stand under the Elevator while it is being lifted;
• Have ready means to secure the Elevator at height.

5.3 Unfolding the Elevator

1. Remove the joining pins from the end of the sections

2. Using at least two people, have one person firmly grip the handle at the end of the top section. While that person is pulling outwards, have the other person/people lift up the top section

3. The combined effort will cause the top two sections to unfold.

4. Unfold the Elevator Completely and lay it on the ground

5. Fit the locking pins to the section joins. Ensure that the locking pins are fitted to the joining pins.

6. The Elevator is now ready to be lifted to height.

5.4 Placing at height

1. Using the agreed and understood lifting method, raise the end opposite to the motor (discharge end) to the height required.
2. Ensure that personnel do not stand under the Elevator during the lift.
3. Secure that the discharge end is secured to the structure against slippage or fall.
4. Ensure that the Elevator is level over the cross-section so that products do not topple sideways during conveyance.
5. Apply the wheel locks to increase Elevator stability (see Fig. 4).

5.5 Connecting Power

1. Connect the female end of an extension lead to the male socket on the Elevator.
2. Ensure that the female end is firmly connected to the Elevator (see Fig.3).
3. Only use extension leads with a minimum 10A rating with a maximum length of 20m. Leads with a 20A rating may be up to a maximum 30m length.
4. Connect the male end of the extension lead to a suitable power supply fitted with an ELCB, RCD or other current sensing device. Fuses or circuit breakers only will not provide sufficient protection for equipment used in outdoor conditions.
5. The Elevator is ready for use.

Fig.3
Power Connection and
Off/On Switch

Fig. 4
Wheel Locks

6. Operating Instructions

6.1 Pre-Operational Checks

· Ensure that the discharge end of the Elevator is securely fastened to the structure;
· Ensure that the belt is free of obstructions or material trapped in the sections;
· Ensure that power is connected to the Elevator and the supply is protected by a current sensing device;
· Have a two people operate the Elevator: one to load the belt, the other to unload the belt before products reach the end of the belt.

6.2 Switching on the Elevator

· Ensure that all personnel are clear of the belt.
· Push down on the white switch next to where the extension lead is connected to the Elevator.
· The belt will move from the motor end (loading end) to the discharge end.
· Elevator should not be started with produc t on the belt or motor overload may occur.

6.3 Using the Elevator

· Place masonry products on the belt with the largest dimension upwards for easier handling at the discharge end;
· The second person used unloads the products at any point along the belt. Avoid allowing products to move off the end of the belt as this will cause a pile- up of product, possibly leading to product spilling off the structure and creating a hazard.
· Keep fingers and body parts clear of the moving belt, especially at the Elevator ends.
· If a blockage occurs, switch off the Elevator and remove power before clearing obstructions or a risk of crushing will be present.

Fig. 5
Loading the belt.

Fig. 6
Unloading the belt.

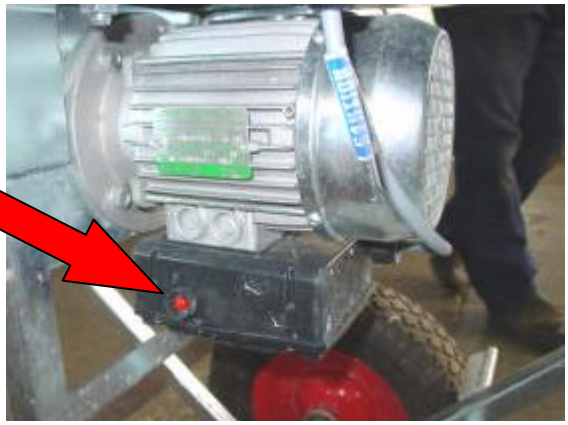
6.4 Switching off the Elevator

· Press up on the white switch next to the extension lead connection point;
· Remove the extension lead from the Elevator when not in use and store in a dry place.

7. Fault Finding

If the Elevator will not or stops working, check:
· Power is still connected;
· The current device has not tripped;
· The power supply is switched on;
· The Elevator power switch is pressed down (“ON”)
· The Elevator may have been overloaded or worked heavily in a hot environment. A temperature sensitive cut-out is fitted as protection for the motor under these conditions. Turn off the power switch on the Elevator and allow the motor to cool down. Press the red switch at the side of the motor. If a small click is heard, the switch has been reset. The Elevator should now restart when switched on.

Fig. 7
Motor showing temperature sensitive
overload switch.



8. Maintenance

8.1 Daily or at the start of each work period

· Inspect the equipment and extension lead, ensuring that there is no damage or evidence of tampering. Do not use the equipment if it is damaged or has been tampered with;
· Ensure that the wheel locks are applied ate the base end and that the tyres are fully inflated. If either item is not correct, the stability of the Elevator could be compromised;
· Ensure that the discharge end of the Elevator is securely fastened to the structure;
· Ensure that the belt is in good condition and is without obstructions blocking free belt movement;
· Ensure that locking pins are fitted to joining pins.

8.2 After extended or heavy use

· In addition to the check points listed in Chapter 7.1, inspect the following items;
· Ensure that the drive chain connecting the motor/gearbox to the drive roller is in good condition and is free to move. Chain defection should not be more than 15mm. Drive chains may be tensioned by loosening the two bolts holding the motor/gearbox unit and moving the motor/gearbox forwards until correct chain deflection is achieved. Correct chain deflection is the chain width in each direction. Apply a light coating of oil.
· Ensure that the belt and belt joiner are in good condition. Excessive fraying at the belt edge indicates that the belt pitch is incorrect and one side of the belt is rubbing on a section edge. Belt pitch is adjusted by loosening the four bolts at the discharge end roller and moving one side of the roller forwards or backwards until correct belt pitch is achieved.
· The gearbox is a sealed unit and does not require maintenance.

9. Shut Down

9.1 Emergency Shutdown

· Stop operation of the Elevator by either:
1. Moving the white power switch next to the extension cord upwards;
2. Pulling out the extension cord from the connection socket on the Elevator
3. Turning off the power supply;
· Remove any product from the belt;
· Erect a sign stating “DO NOT USE – ELEVATOR UNDER REPAIR” and fix to the equipment;
· Inform management or management’s agent of the situation.

9.2 End of work period shutdown

· Remove any product from the belt.
· Switch off the Elevator;
· Remove the extension cord and store in a dry place;
· Secure the Elevator to the structure to reduce the risk of theft.

9.3 End of hire shutdown

· Remove any product from the belt.
· Switch off the Elevator;
· Remove the extension cord and store in a dry place;
· Follow the instructions in Chapter 10 Removal;
· Return the Elevator to the point of hire or arrange collection.
· Where Elevators are not removed from their ins tallation point, an extra charge for pickup will be applied.

10. Removal

· Using at least two people, release the Elevator from the structure;
· Using an agreed work method, lower the Elevator to the ground;
· Remove the joining pins from the section joins;
· Fold-up the Elevator by lifting up the sections at the join of the wheeled section and the next section. This will cause the sections to fold up together;
· Lower the folded sections down onto the wheeled section. Ensure that person taking the weight of the folded sections has:
- Sufficient strength to handle the two folded sections;
- A firm grip on the sections;
- Adopt a body posture that will not involve strains to back or groin muscles.
· Tuck the belt inside the sections to avoid the exposed belt catching and tearing on an obstruction;
· Refit the joining pins together with their locking pins;
· Release the wheel locks;
· The Elevator may now be wheeled away.