WISH

Waste Industry Safety and Health Forum

FORMAL GUIDANCE DOCUMENT

COMPACTOR EQUIPMENT: PUBLIC AND USER SAFETY

This guidance has been developed by the Waste Industry Health and Safety (WISH) Forum to help control safety and health risks in the waste management industry associated with the use of compactor units (packers), in particular on customer and similar premises. The Health and Safety Executive (HSE) was consulted in the production of this publication. It endorses the sensible, proportionate, reasonable and balanced advice to owners on managing the risk from this guidance during the waste-related activities as set out in the guidance.

This guidance is for managers, supervisors and operators and at premises where compactors (packer units) are used to compact wastes. It is also relevant to hirers and leasers of this equipment. Packer units and closed skips are frequently placed in communal areas for use by a number of users and where the public and other workers have access, such as:

- Retail premises
- Offices, commercial units and similar
- Civic amenity sites (CA sites)

This document focuses on public safety and the risks to operators. Reference to this guidance may help industry duty-holders to devise, institute, monitor and revise methods of work on their sites.




Contents




1. Hazards

Where compactors are located in areas where the public may, or will, have access, such as retail and commercial premises service areas and civic amenity sites, there is the potential for members of the public and others (children and adults) to gain unauthorised access to the dangerous parts of compaction/packer equipment.

The operators of compactor units at retail and similar premises may not be familiar with the general principles of machinery safety, in the way that a waste management operative may be. This may include temporary workers and others whose previous exposure to machinery may be limited.

Serious injury or death can result if the machine is then operated, or when containers are collected or replaced. Injury can be caused by inadequate guarding and by unsafe systems of work, including inadequate isolation/lock-off procedures when changing skips, clearing blockages, when wastes are being loaded into the waste hopper by members of the public at civic amenity sites etc.

2. Risk assessment

Compactors normally include a feed inlet, a compaction chamber and an outlet to a container/skip that receives the waste. A ram compresses material under automatic or manual control into a container/bin/skip which is later removed for emptying off site. On some portable compactors the waste container is integral to the compaction unit. The feed inlet to the compaction chamber usually includes a hopper that can be loaded by: hand, lift truck, bin lift mechanism for lifting and tipping wheeled bins containing waste, conveyor system, or chute.

The main machinery/equipment safety risks associated with compactors which you should include in your risk assessment include, but are not limited to risks from:

- Compaction rams (both forward and reverse motion of the ram)
- Other moving parts
- Bin lifts
- Closing/opening lids/doors

The figure 1 over-page shows the principle machinery danger areas on a compactor unit.

In addition, container/skip exchange activities, ie the risk of being: struck by the vehicle or container; or being trapped or crushed between the container and a fixed object, eg a wall, particularly if the container is in a restricted area.

Figure 1 The principal danger areas of a typical compactor

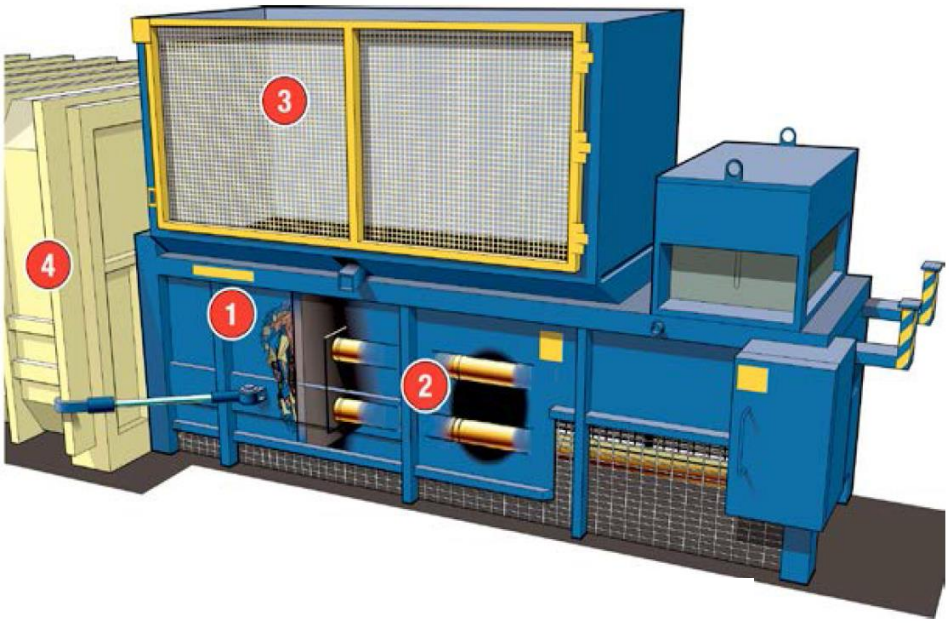
Key

1 Compaction area (showing detailed, internal view)

2 Area behind the compaction plate (showing detailed, internal view)

3 Feed opening

4 Pinning-off area



You must also take account, as relevant, that packer units are often positioned in areas remote from frequent and direct supervision, and this can influence the safety of site employees, pick-up drivers, and members of the public. Your risk assessment should therefore address:

- Their positioning – how secure is the area, do persons other than those authorised to use the compactor potentially have access etc
- The activities that do or could potentially take place at them (including bin servicing, possible interactions with the public etc) – could members of the public and other unauthorised persons have access during bin changes etc

Your assessment should also include other risks, which are not covered in this guidance and may be revealed during your risk assessment, including:

- Transport and traffic risks associated with lorries servicing the compactor, changing bins etc
- Falls from height if persons climb onto the compactor
- Slips and trips in the area around the compactor
- Manual handling issues associated with loading wastes, changing bins etc

For advice on controlling these risks, see f*urther reading* below.

Work involving compactors should be monitored/inspected at appropriate intervals. This will help you identify potential flaws in your systems of work. For example:

- Do employees follow your agreed safe systems of work? If not, why not?
- Are your systems adequate to control the risk? Do they need revising?
- Have any changes occurred since your last risk assessment?
- Are your measures to exclude unauthorised access effective?

You should review your risk assessment regularly.

3. Control measures

Safe site

Packer units should be located and positioned to avoid or minimise transport risks (such as access by waste vehicles to change bins) and access by unauthorised people. This is particularly important if the unit is located in a public area, such as a shopping centre service area.

Providing lockable fencing around packer units can be an effective way of preventing unauthorised access. For example, placing a security fence around the area a packer unit is located in with locked doors, the keys for which are only held by authorised persons. The height and design of such fencing should reflect the risks under foreseeable circumstances particular to the unit's location. Typically, 2-metre high fencing is found at these units. Fencing should be difficult to climb, and any gaps provided to assist cleaning should be small enough to prevent unauthorised access.

Consideration should be given to any existing security measures, such as traffic barriers to prevent access to retail premises service areas. However, such measures may effectively stop unauthorised vehicles, such as member of the public's cars, from entering but provide little block to pedestrians.

Adequate lighting will assist safe operation and may deter unauthorised access.

In areas where the public may have access, the doors to closed skips attached to compactors should be locked at all times when they are not in use, especially 'out of hours'.

Areas immediately around the unit should be kept free from obstructions, accumulated rubbish and other items which may interfere with bin exchange activities, or may enable people to use them as a means of access to the dangerous parts, for example a pile of pallets which may defeat distances to waste load hopper designed to provide safe loading away from machinery hazards.

Safe equipment

All dangerous parts of machinery should be adequately guarded. Guarding should take account of both routine use and foreseeable problems and misuse.

Where the equipment is in public areas, gaps in guarding and machine fencing (such as those provided for cleaning) should effectively prevent potential access by children. The ‘standard’ gap requirements in machinery safety standards may not be adequate for children who have smaller limbs and bodies and may be able to squeeze into gaps an adult could not.

All guarding provided to prevent access to the dangerous parts, and any interlocking devices fitted, should be adequately maintained.

Controls should be secured so that unauthorised operation is effectively prevented. Effective electrical isolation, lockable controls and/or dedicated key operation are methods commonly used to achieve this (see below on safe systems of work).

Where a bin lift is used to load the unit, the hoist-way should be fitted with a perimeter machine fence to prevent access during lift use. Since access is regularly required, doors/gates in this fencing should be fitted with interlocks to prevent access during hoist movement. Controls should be situated outside this enclosure away from bin lift movement and hold-to-run controls (where release of the control will arrest all machinery movement) are preferred.

Signs on packer units need to be simple and bold (such as pictograms) to take account of possible use by those for whom English is not their first language.

Instructions on basic use need to be placed on the unit itself – users may not have easy access to operating manuals.

Safe systems of work

You should use your risk assessment to identify safe systems of work. In particular, safe systems of work should include (but not be limited to) two specific activities in which several serious, and fatal, accidents have occurred:

- Dealing with blockages
- Bin/container transfer and exchange activities

Blockages

There is a history of workers being killed while clearing blockages at compactors. Dealing with blockages should therefore be well thought out and subject to a written safe system of work.

In addition to your written safe system of work for clearing blockages, it recommended that you have a permit-to-work system in place for access to the compaction chamber, ram and other dangerous parts of machinery.

Before attempting to clear any blockage, you should ensure that:

- As required permit to work is issued and that it clearly sets out how the job should be done
- Operation of the equipment is prevented by isolating the electrical supply and effectively 'locking off' the machine controls. To prevent dangerous parts moving under gravity or residual pressure, it may be necessary to use physical scotches or relieve stored pressure in fluid power systems before attempting to clear blockages. Likewise any lifting equipment may need to be propped to prevent movement under gravity – hydraulic valves should not be trusted to prevent lift arm movement
- All guards, fencing etc are replaced before the equipment is reinstated

You may decide that you do not have sufficient expertise in-house, and therefore have to rely on specialist contractors, the supplier or other competent external party to deal with blockages.

Skip/bin transfer/exchange

To minimise the risk of vehicle/pedestrian collision during lifting operations, keep the area around the units clear (eg of parked cars, bins, waste etc) and unauthorised persons. Fencing, bollards, painted lines etc can assist in keeping the area clear for collection. In some cases, before the servicing vehicle arrives, it may be necessary to temporarily keep the area clear by using cones, bunting, signs etc.

Members of the public and any non-essential staff should be effectively excluded from the area during this activity. If possible, choose an appropriate time of day to do this work, when no one is around. Your risk assessment is likely to show that staff are needed on site to ensure that the immediate surrounding area is clear of pedestrians before skip transfer begins.

Workers assisting reversing activities should be adequately trained, be aware of the risks, and remain in clear view of the vehicle driver at all times. If at any time the driver cannot see the assistant, then they should stop!

Safe operators

Manufacturers and suppliers should provide information on the safe operation of packer units. This information should be used in your safe systems of work and be freely available to operators of compaction equipment.

Packer units should only be operated by suitably trained staff. Training should cover operation, identifying and reporting defects, and what actions should be taken if a defect or blockage is found. To prevent blockages and problems during container removal and tipping of waste, training should include what materials are suitable/unsuitable as feedstock.

Signs and instructions on units should be maintained in a readable condition. Consider the special training needs of temporary or part-time workers, and those who may not have English as their first language.

Refresher training should be provided periodically.

You should regularly monitor and review operations to ensure that safe working procedures are carried out and remain effective.

Further reading and information

Safe transport in waste management and recycling facilities WISH WASTE 09
Guidance for the recovered paper industry Booklet INDG392
Guidance on permit-to-work systems: A guide for the petroleum, chemical and allied industries HSG250 HSE Books
Five steps to risk assessment Leaflet INDG163 HSE Books
Supply of Machinery (Safety) Regulations and its approved code of practice
BS EN 13857: Safety of machinery. Safety distances to prevent danger zones being reached by the upper and lower limbs, British Standards Institution
BS EN 1088: Safety of machinery. Interlocking devices associated with guards. Principles for design and selection British Standards Institution

Disclaimer and WISH

Nothing in this guidance constitutes legal or other professional advice and no warranty is given nor liability accepted (to the fullest extent permitted under law) for any loss or damage suffered or incurred as a consequence of reliance on this guide. The guidance is not a substitute for duty holder judgment and/or professional safety advisor's judgment, Notwithstanding the good practice in this guidance, duty holders are responsible for ascertaining the sufficiency and adequacy of their internal and independent procedures for verifying and evaluating their organisation's compliance with health and safety law. WISH does not accept any liability (to the fullest extent permitted under law) for any act or omission of any persons using the guidance

The Waste Industry Safety and Health (WISH) Forum exists to communicate and consult with key stakeholders, including local and national government bodies, equipment manufacturers, trade associations, professional associations and trade unions. The aim of WISH is to identify, devise and promote activities that can improve industry health and safety performance.

Further information

This guidance is issued by the Waste Industry Health and Safety (WISH) Forum to help control safety and health risks. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance. Some parts of the guidance represent good practice and may go further than the minimum needed to comply with the law.

This guidance is available free to download at the WISH web site. This publication is based on guidance previously published by THE Health and Safety Executive (HSE) known as Waste 08, which was withdrawn in 2015.