

Skip and container safety in waste management and recycling



Introduction

This 'good practice' was written in consultation and with the support of the Waste Industry Safety and Health Forum (WISH). It does not aim to be comprehensive but gives examples of good practice within the industry.

This guidance is for designers/ manufacturers, buyers, users and maintenance staff who work with skips and containers used with skip loader and hook loader vehicles.

There are no national standards for skips and containers. However, a number of commonly used industry standards exist (see *Further reading*). Deviations from these standards are not necessarily unsafe (depending upon use, systems of work etc), but using different standards has the potential for a mismatch between the skip/container and the vehicle handling them. Any such mismatch can present risks which will need to be adequately controlled to ensure safety.

Manufacturers have duties under the Provision and Use of Work Equipment Regulations 1998 (PUWER). They should ensure that the design and manufacture of skips and containers is of good quality and that the selection and sizing of materials used is adequate for the intended use.

Buyers also have duties under PUWER to select skips and containers that are safe to use, and are maintained in a safe condition.

Skips

Skips (receptacles specifically designed for use with skip loader vehicles) are used to store, transport and discharge dry waste and exist in a wide variety of sizes and configurations.

'Mini skips'

These smaller skips have a capacity of between 1.5 and 2 m³. They are not designed and manufactured to a common agreed industry standard but to suit the individual design of skip loader.

Buyers should therefore ensure that the skip is compatible with the skip loader to ensure correct interfacing and safe use.

Larger skips

For skips of 3 m³ up to the maximum 20 m³ a commonly used industry standard exists (see *Further reading*). It adopts general dimensions for:

- overall size;
- positioning of lugs for lifting; and
- positioning of tipping bars for discharging.

Special applications skips

These require extra consideration and discussion between the buyer, the skip designer/manufacture, the skip loader supplier and any other associated equipment supplier to ensure equipment compatibility and safe use.

Design, manufacture and purchase of skips

- The skip shell is fully welded on all external edges and corners.
- Extra heavy-duty skips (eg used for scrap metal) are also fully welded on the inside, and additional reinforcing plates fitted to the discharge corners. (Some manufacturers weld the inside and outside of all skips as standard practice.)
- All upper edges are reinforced with channel section.
- Lifting lugs:
 - pass through horizontal channel sections which extend the full length of the skip or vertical channels welded between two horizontal channels, depending on the capacity of the skip;
 - have reinforcing plates welded to the inside of the skip shell where the shank of the lifting lug passes through the side plate;
 - all channels which carry lifting lugs should be fully welded to the side plate.
- All drop-down doors (eg on builders' skips) have a locking device keeping them securely closed and a secondary lock fitted to the main lock to ensure that the door remains closed and safe during moving and transporting. Locks are of robust construction to withstand the rough treatment they are likely to receive, yet easy to operate.
- Loading doors fitted to the sides of large single-ended skips, and especially rear-end loader (REL) skips, have their hinges fitted towards the rear end of the skip to avoid injury to the operator in the event of a door falling open while the skip is being discharged.
- Any hinged covers fitted to skips are light enough to permit safe opening and closing by hand from ground level. Hinges and locking devices are designed for ease of operation and durability.

Depending on their use, some lighter skips (notably REL skips, which have long shallow inclined front plates) can, and have, exhibited instability when heavy materials (rubble, scrap metal etc) have been loaded onto the inclined front plate without being evenly distributed across the base of the skip (Figures 1 and 2). Where this may arise, manufacturers should provide information for the user so that this risk can be controlled.

Where foreseeable misuse can present the possibility of an unevenly distributed load toppling the skip, possible design/manufacturing solutions could include:

- making the angle of incline at the front plate steeper to prevent excessive amounts of heavy materials accumulating on the incline (Figure 3); and/or
- wedge-shaped 'stabilisers' under the inclined front plate (Figure 4).

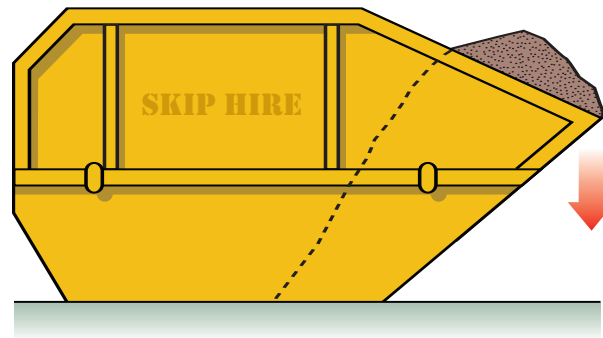


Figure 1 Excess heavy materials loaded onto front inclined plate, instead of being distributed evenly across the skip

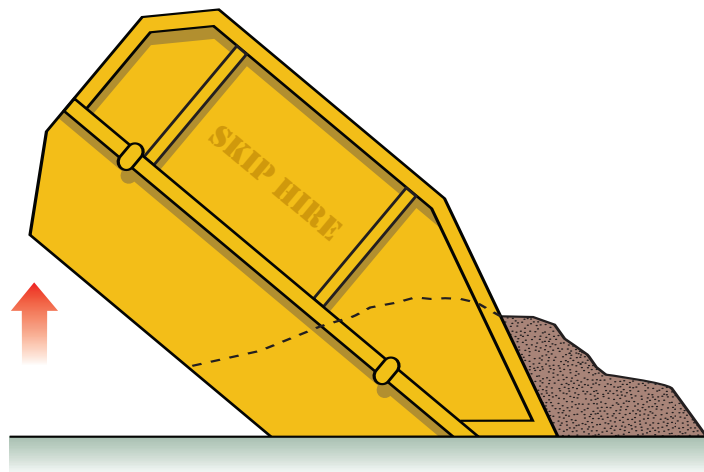


Figure 2 Result – skip topples

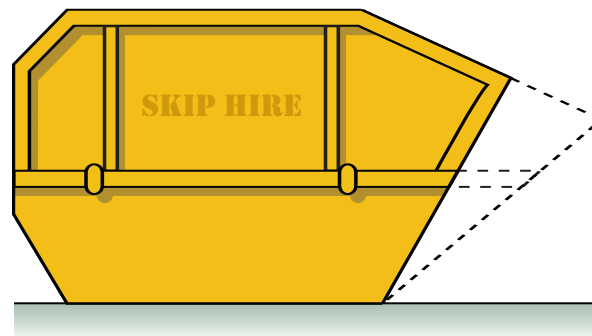


Figure 3 Make angle of incline steeper

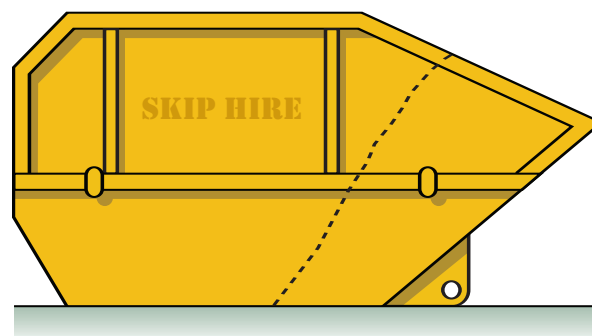


Figure 4 Fabricate and fit wedges to act as stabilisers

Containers for hook loaders

Containers (receptacles for storage, transportation and discharge of dry waste) are specifically designed for use with hook loader vehicles.

They are available in a variety of sizes and configurations. They can be open or closed, typically ranging in size from 1.5 m³ to 30 m³.

Containers for small hook units (3-10 tonnes gross vehicle weight (GVW)) and large hook units (11-32 tonnes GVW) should have sub-frames designed and manufactured in accordance with the appropriate accepted industry standards (see *Further reading*).

These standards set down the general dimensions for the sub-frames and front 'A' frames, including the position of the hook bar, locking points and other essential information to ensure correct interfacing and safe use with hook loader vehicles.

Considerations for the design, manufacture and purchase of containers

- Container 'A' frame, body plates and all fittings such as hinges and locking devices are fully welded.
- Containers for extra heavy duty have additional reinforcing plates fitted to areas of high stress.
- All upper edges are reinforced with channel or rolled hollow sections.
- Container sub-frames and 'A' frames are in accordance with the commonly used industry standards (see *Further reading*).
- Larger containers have a deflector plate fitted at the top of the 'A' frame above the hook bar to ensure that the vehicle hook engages correctly and safely with the container hook bar (bale bar).
- The main door locks are strong enough to keep the door(s) of a loaded container closed. They should withstand the forces exerted on them by the material in the container due to any movement during on-loading and travelling.
- The secondary lock is strong enough to keep the door(s) of a loaded container closed after releasing the main door locks before tipping.
- The operating device for the secondary lock is located at the side of the container and operates within a closed system (eg a labyrinth or slide) to ensure that the operator is in a safe position when the door(s) are released.
- Door hold-back devices (restraints) are fitted. They are strong enough to withstand the forces exerted by the doors when the container is tipped for discharge. The design is such that the latch is positive and cannot become unlatched due to movement of the container. (Chains are not recommended for restraining open doors.)

Containers for front end loaders

These containers are designed specifically for use with front end loading waste collection vehicles (FELs) and are available in a range of sizes from 1.5 to 7.5 m³.

Dimensions for positioning the lifting pockets should be in accordance with the commonly used industry standard (see *Further reading*).

The principles of construction with regard to strength of the container shell and loading doors apply as outlined above for skips. The practice of modifying other types of container by the addition of lifting pockets is to be avoided unless carried out by a bona fide manufacturer who has the means to test the modified container.

Considerations for the safe use and condition of skips and containers

Collection workers should be provided with systems of work and adequate training to enable them to carry out their work safely and competently. They should also be competent, through training, to:

- recognise faults and/or damage to skips and containers that could make them unsafe to use;
- undertake regular checks and report on the condition of skips and containers including:
 - lifting points;
 - locking points;
 - tipping bars;
 - doors;
 - door locks;
 - restraints;
 - covers;
 - general condition.

Operators should be sufficiently competent to be able to select the correct type of skip for the intended task. This should include:

- strength, considering its intended load;
- stability, considering the weight and placement of skip contents;
- methods to ensure the acceptable distribution of load weight within the skip.

Give operators the authority, through written procedures, to return damaged and unsafe skips and containers to their depot for repair or destruction or, where this would be unsafe, to seek further advice.

Withdraw damaged and unsafe skips and containers from service. Repair and inspect before putting back into service.

Instruct drivers to report hazardous situations which they believe would result in a risk to themselves or to the vehicle if they continued with the operation. For example:

- a grossly overloaded or unsafely loaded skip or container;
- insufficient headroom to retrieve the skip or container;
- insufficient space to be able to work safely;
- skip or container on sloping ground – up/down slope, cross slope or combination of up/down and cross slopes;
- skip or container on soft ground.

There is an obligation on managers to consult with staff on health and safety issues. The support and co-operation of staff is essential to running a safe skip and container collection and transportation operation. Safety representatives and other staff can make a valuable and positive contribution towards achieving the desired outcome by generating sound, practical ideas and solutions.

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

Further reading

Provision and Use of Work Equipment Regulations 1998 SI 1998/2306 The Stationery Office 1998 ISBN 978 0 11 079599 7

Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance L22 (Second edition) HSE Books 1998 ISBN 978 0 7176 1626 8

Safe use of skip loaders: Advice for employees Pocket card INDG378 HSE Books 2003 (single copy free or priced packs of 10 ISBN 978 0 7176 2216 0) Web version: www.hse.gov.uk/pubns/indg378.pdf

Commonly agreed industry standards are produced by and available from the Container Handling Equipment Manufacturers Association (CHEM). CHEM represents a number of manufacturers and suppliers providing equipment to the waste industry. Its members adopt, where appropriate, the standards outlined in the following documents to permit safe vehicle-to-container interfacing:

TS2 10 cu.m. *Compacted Waste Container for Lift-off Vehicle*
TS5 15 cu.m. *Compacted waste Container*
TS6 *Compaction Containers for Hook Type Units*
TS8 *Sub-frame Specification for Hook Type Units*
TS10 *General Arrangement of 11.5 cu.m. REL Container*
TS11 *Front End Loader*
TS12 *Access Criteria for High Sided Open Top Containers*
TS13 *Sub-frame for Smaller Hook Type Units*
TS14 *Standard Specifications for Skip Containers*
CHEM Code Of Practice No. 2 *The Safe operation of Skip Vehicles*
CHEM Code of Practice No. 4 *The Safe Operation of Ground Level Demountable Body Systems (Hook Type)*
CHEM Code of Practice No. 6 *The Safe Operation of Front End Loaders*

Further information

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This document contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

This document is available web-only at: www.hse.gov.uk/pubns/waste06.pdf

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