BRITISH STANDARD

BS 5832:1980

Specification for

Compacted waste containers for lift-off vehicles

UDC 628.4:66.083:621.869.88

Cooperating organizations

The Building Services Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Association of District Councils
Bath Manufacturers' Co-ordinating Committee
British Gas Corporation
British Ironfounders' Association
British Plastics Federation*
British Plumbing Employers Council
British Precast Concrete Federation Ltd.
Builders Merchants' Federation
Building Services Research and Information Association
Chartered Institution of Building Services
Clay Pipe Development Association Limited
Consumer Standards Advisory Committee of BSI
Convention of Scottish Local Authorities
Council of British Ceramic Sanitaryware Manufacturers
Department of Health and Social Security
Department of the Environment, Building Research Establishment
Department of the Environment, Housing and Construction*
Department of the Environment (PSA)
Department of the Environment, Water Engineering Division including Water Data Unit*
Domestic Solid Fuel Appliances Approval Scheme
Environmental Health Officers' Association
Greater London Council*
Heating and Ventilating Contractors' Association
Incorporated Association of Architects and Surveyors
Institute of Plumbing
Institution of Gas Engineers
Institution of Municipal Engineers*
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National Coal Board
National Federation of Building Trades Employers
National Water Council
Royal Institution of British Architects
Royal Institution of Chartered Surveyors
Royal Society of Health
Scottish Development Department
Trades Union Congress
Water Companies Association

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Association of Metropolitan Authorities
Container Handling Equipment Manufacturers
Engineering Industries Association
Institute of Housing Managers
Institute of Solid Wastes Management
Packaging and Industrial Films Association

This British Standard, having been prepared under the direction of the Building Services Standards Committee, was published under the authority of the Executive Board and comes into effect on 31 January 1980

The following BSI references relate to the work on this standard:
Committee reference LBC/27
Draft for comment 78/10747 DC

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Amendments issued since publication

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Contents

Foreword

Compaction systems for dealing with solid wastes have been introduced into this country during the last decade and have been readily accepted for use in situations where moderate to large quantities of wastes are handled. They are, at present, used in large residential buildings, commercial premises and light industrial organizations. In view of the desirability of providing for the maximum possible degree of compatibility between the parts of the compaction systems, i.e. compactor, container and servicing vehicle, preparation of this standard was initiated by Technical Committee SAB/16 (now SEB/20), "Appliances for refuse storage and collection" and has been prepared under the direction of the Building Services Standards Committee.

The committee decided that its aims would best be met by adopting a standard container which could be used with a range of compactors and serviced by any suitably equipped lift-off vehicle. Neglecting the variety of receptacles such as paper and plastics sacks, cardboard boxes or small rigid containers which are used with the smaller types of compactors, compacted waste containers fall into two ranges: those between about 8 m^3 and 20 m^3 capacity, normally serviced by a lift-off vehicle, and those from 20 m^3 to 40 m^3 capacity which are handled by a roll-on/roll-off vehicle. This standard applies to the most popular size of container 10 m^3 which is used in conjunction with a lift-off vehicle; over 90 % of current production is concentrated on this type. When packed with a wide variety of wastes this forms a load compatible with a 16 tonne gross vehicle weight vehicle with a tare weight, complete with lift-off gear, of 7 tonne to 8 tonne. For this reason it was decided to specify only one size of container, interchangeable between the widest possible range of compactor/servicing vehicle combinations, which should be instrumental in assisting the rationalization of the design of compaction systems.

For some applications, it may be necessary to fit a rubber seal between the door and the container to prevent spillage of liquids.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies requirements for interchangeable compacted waste containers of approximately 10 m^3 capacity which can be handled by vehicles equipped with lift-off equipment and which are suitable for use with a range of compactors capable of applying a compaction pressure of up to 200 kPa acting over the whole input area. The containers are made of steel plate reinforced to withstand compaction and handling stresses and are of welded construction throughout.

2 References

The titles of the publications referred to in this standard are listed on the inside back cover.

3 Definitions

For the purposes of this British Standard the following definitions apply.

3.1
capacity

the internal volume of the compacted waste container

3.2
compacted waste container

an interchangeable container for controlled wastes that are packed into it under compression by means of a compactor which reduces the waste volume, according to the nature of the wastes and the force exerted by the compactor

3.3
compactor

a machine consisting of a loading hopper swept by a power-operated ram for feeding wastes from the hopper into a compacted waste container

3.4
controlled wastes

waste materials in household, commercial and industrial categories as defined in the Control of Pollution Act 1974

3.5
lift-off vehicle

a road vehicle fitted with specially constructed equipment for loading, unloading and positioning compacted waste containers by direct lifting

3.6
pinning-off

a process by which steel rods or tubes are secured across the feed opening of the compacted waste container to contain the wastes therein before it is disconnected from the compactor

3.7
tip bars

bars on the bottom of the container (see Figure 1 and Figure 2) that engage with catches on the lift-off vehicle and act as a fulcrum about which the container is tipped for emptying

3.8
volume reduction ratio

an indication of the quantity of waste that may be packed into a container, i.e. inlet volume of waste/compressed volume of waste

4 Materials

4.1 Steel. The container shall be constructed throughout from low carbon steel. All steel sheet or plate used shall comply with the requirements of HR 14 or HR 15 of BS 1449-1 and shall be of one of the following minimum thicknesses:

front	4 mm
floor, sides, roof	2.5 mm
bearers	4 mm
reinforcing channels	3 mm
front reinforcement	4 mm

All other steel, apart from sheet or plate, used in the construction of the container shall comply with the requirements of BS 4360.

4.2 Tension spring. The material of the tension spring (see Figure 2) shall comply with the requirements of NS2 of BS 5216.

5 Dimensions

The dimensions shall comply with those given in Figure 2, Figure 3 and Figure 4. Tolerances on the dimensions marked with an asterisk, which are those essential to maintain compatibility between the various compactor lift system arrangements, shall be 0.5 % on dimensions up to and including 500 mm and 1.0 % on dimensions over 500 mm. Tolerances on other dimensions shall be 2.0 % on dimensions up to and including 300 mm and 4.0 % on dimensions over 300 mm.

6 Construction

6.1 General. The container shall be of sound and suitable construction, free from sharp edges, crevices or other defects, and the internal surfaces shall be sufficiently smooth to ensure efficient emptying of the contents of the container. The container shall be suitably reinforced to withstand, without deformation, the stresses imposed when material within it is compacted by a pressure of up to 200 kPa acting over the whole of the input area. Welding shall be carried out in accordance with the requirements of BS 5135.

6.2 Front. The front of the container, i.e. the forward end when placed on the lift-off vehicle (see Figure 1), shall be shaped to facilitate handling and to assist the movement of materials within it, ensuring that the maximum possible volume reduction ratio is attained.

6.3 Base. The container base shall be smooth and free from any waviness that might interfere with emptying. Internal junctions with walls and roof shall be smoothly finished. External reinforcement shall be sufficiently robust to withstand additional stresses imposed by impact with the ground or the floor of the lift-off vehicles.

6.4 Sides. The sides of the container shall be smooth and shall have suitable horizontal corrugations and reinforcements to resist compaction stresses.

NOTE Horizontal corrugations have been found to assist emptying of containers.

6.5 Door. The door shall be top hung, hinged to the container body and equipped with safety lock handles and safety plates, at the positions shown in Figure 4, to protect the pinning-off holes. The hinges shall work freely and shall not distort under normal operating conditions. Hinge pins shall be replaceable.

6.6 Safety lock handles. Handles shall be designed to hold the door shut against the pressure of compacted wastes within, when the container is detached from the compactor, and to release that pressure safely before the door is swung open when the container is tipped to discharge its contents.

6.7 Lifting lugs. Four lifting lugs shall be fitted at the positions shown in Figure 2 and Figure 3. These lugs shall sustain the total weight of the filled container, shall penetrate both the reinforcing hoop and the container side and shall be welded, as shown in Figure 3, at the outside of the hoop and the inside of the container. The lifting lugs shall have smoothly finished edges to enable the lifting plates to be placed over them without difficulty. Internal welds shall be smoothly finished to prevent sticking of the container contents.

6.8 Tip bars. Tip bars shall be securely fitted to the base of the container with suitably reinforced brackets to withstand loads imposed when the container is tipped for emptying.

6.9 Safety plates. Safety plates mounted on extension pieces shall be securely welded to the door frames to protect the pinning-off holes, as shown in Figure 1 and Figure 4.

NOTE Holes through which "pins" or tubes for pinning-off are inserted give access to the face of the moving ram and anything inserted through one of these holes could be sheared off if the ram were moving.

7 Finish

7.1 External finish. The outside of the completed container shall be cleaned, degreased and painted with at least one coat of priming paint complying with the requirements of BS 2521 & BS 2523 or BS 2524.

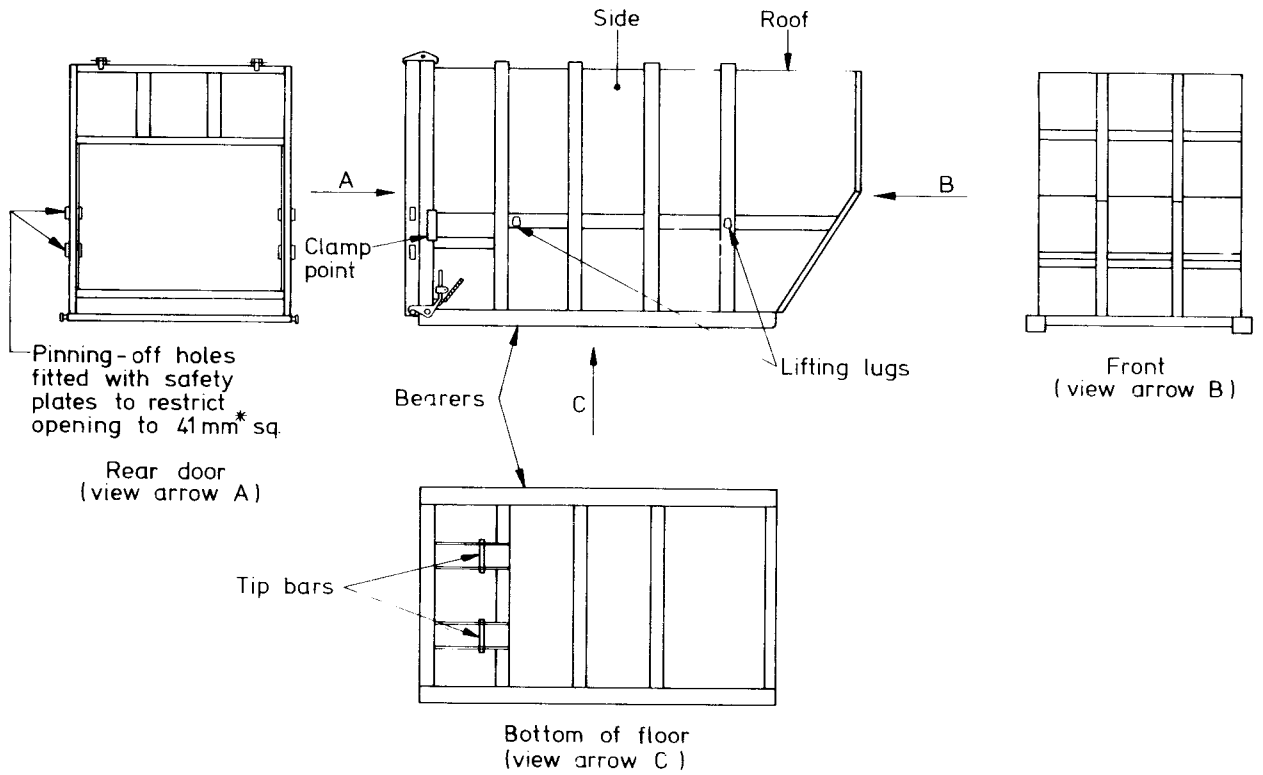
7.2 Internal finish. All internal surfaces of the completed container shall be cleaned and loose scale and welding slag shall be removed.

8 Marking

Each container shall be legibly and indelibly marked with the following:

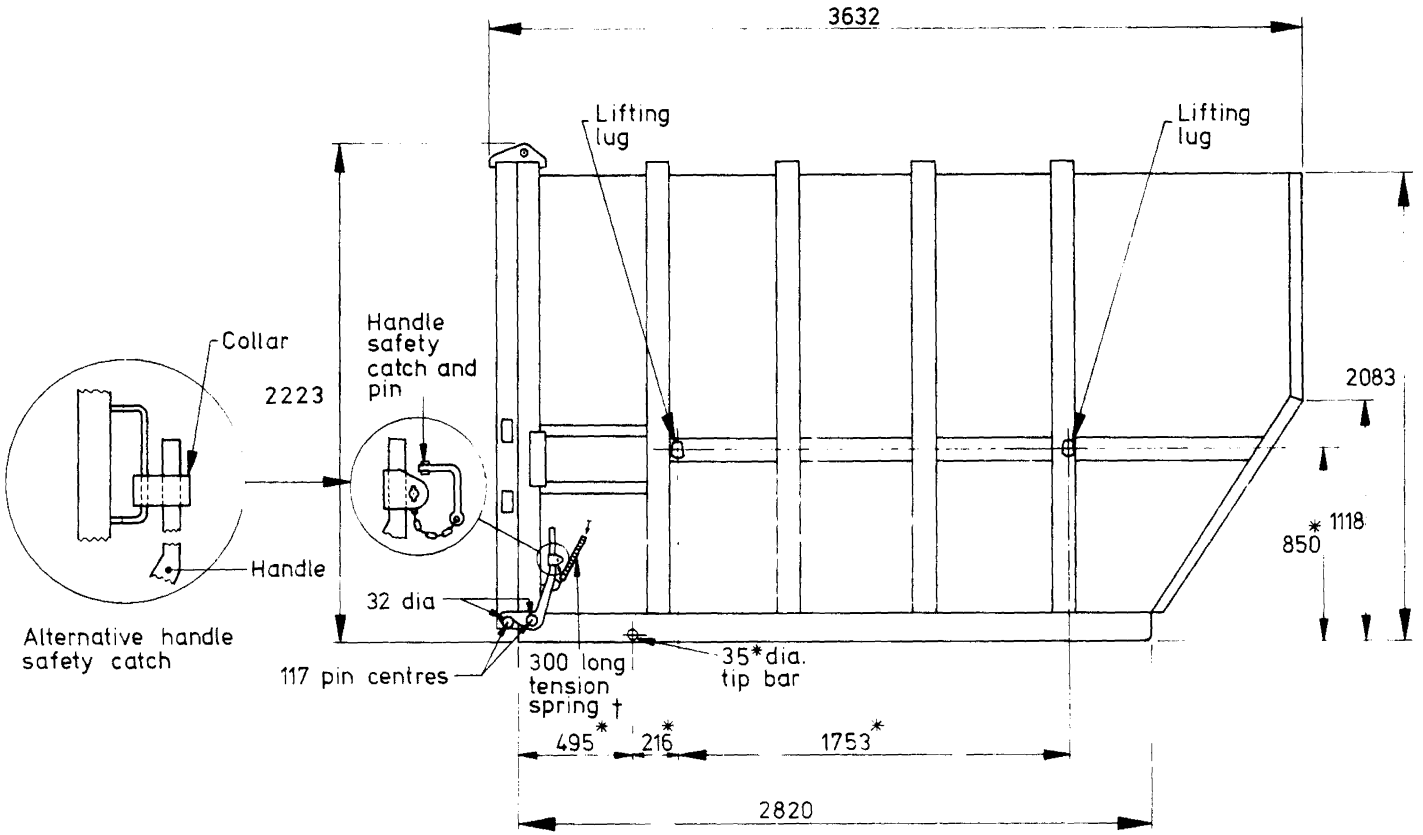
a) the manufacturer's name or identification mark;

b) the number of this British Standard, i.e. BS 5832.



*Dimensions essential to maintain compatibility between the various compactor lift system arrangements.

Figure 1 — Compacted waste container for lift-off vehicle



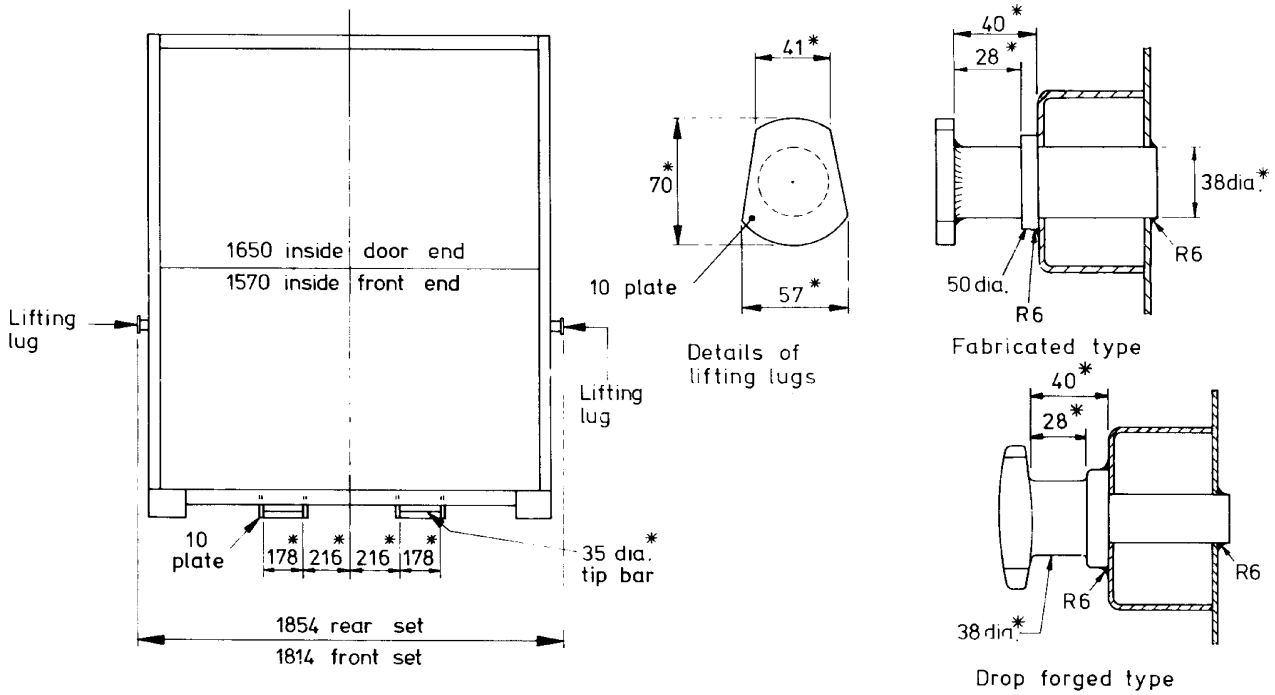
NOTE Dimensions are in millimetres.

* Dimensions essential to maintain compatibility between the various compactor lift system arrangements.

† Tension spring:

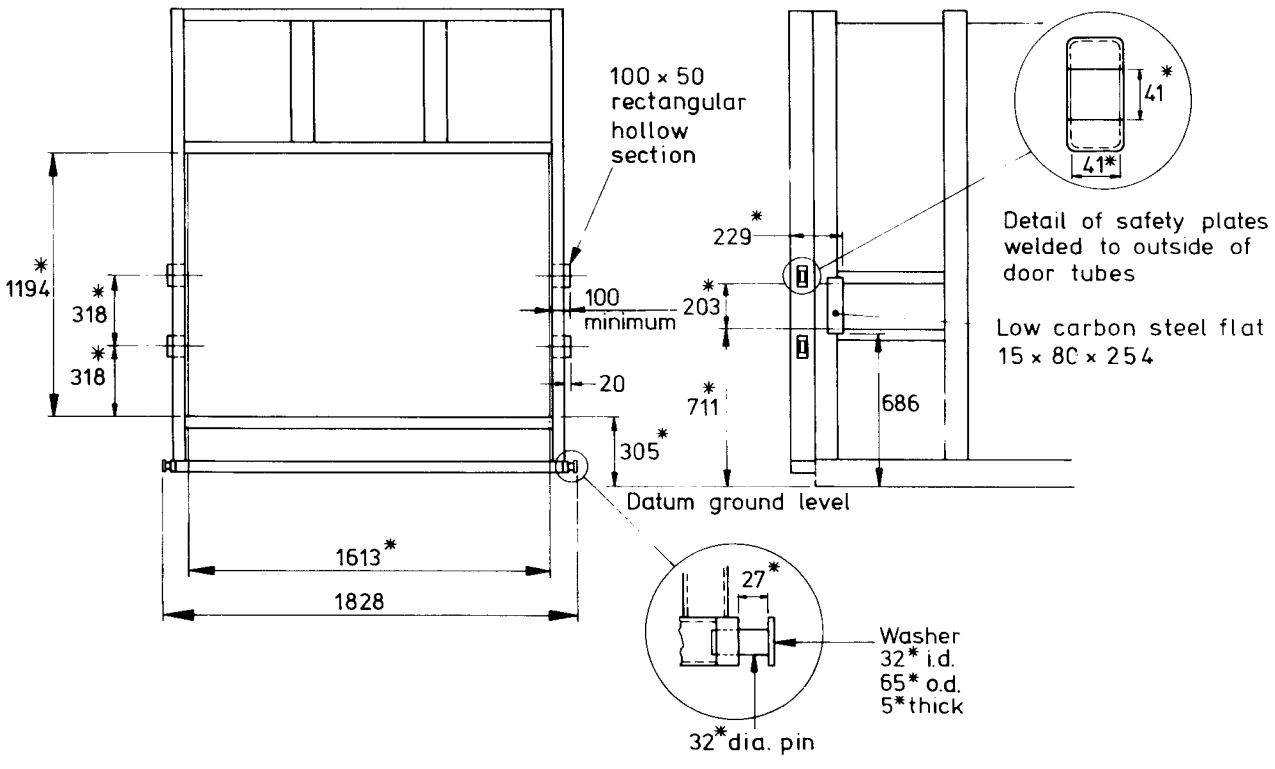
Overall length	345 mm
Outside diameter	26 mm
Thickness of wire	4 mm

Figure 2 — Side view of compacted waste container



NOTE Dimensions are in millimetres.
*Dimensions essential to maintain compatibility between the various compactor lift system arrangements.

Figure 3 — Sectional view showing the positions of the lifting lugs and the tip bars



NOTE Dimensions are in millimetres.
*Dimensions essential to maintain compatibility between the various compactor lift system arrangements.

Figure 4 — Universal door

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Publications referred to

BS 1449, *Steel plate, sheet and strip.*
BS 1449-1, *Carbon steel plate, sheet and strip.*
BS 2521 & BS 2523, *Lead-based priming paints.*
BS 2524, *Red-oxide-linseed oil priming paint.*
BS 4360, *Weldable structural steels.*
BS 5135, *Metal-arc welding of carbon and carbon manganese steels.*
BS 5216, *Patented cold drawn carbon steel for mechanical springs.*

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