

Specification for

Mild steel drums (Heavy Duty — Fixed Ends)

Co-operating organizations

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

Association of British Chemical Manufacturers*	Food Manufacturers' Federation*
Association of British Pharmaceutical Industry	Glass Manufacturers' Federation
Association of Steel Drum Manufacturers*	Industrial Management Research Association
Board of Trade*	Institute of Packaging
British Carton Association	Institution of Production Engineers
British Paper Bag Federation	National Federation of Box and Packing Case Manufacturers
British Paper Box Federation	National Federation of Employers of Coopers in the United Kingdom
British Railways, The Railway Executive*	National Federation of Grocers' and Provision Dealers' Associations
British Tin Box Manufacturers' Federation*	National Paint Federation*
Collapsible Tube Manufacturers' Federation	Printing, Packaging and Allied Trades Research Association
Co-operative Wholesale Society Ltd.	Society of British Paint Manufacturers Ltd.*
Cotton Bag Manufacturers' Association	
Crown Agents for the Colonies	
Envelope Makers' and Manufacturing Stationers' Association	
Fibreboard Packing Case Manufacturers' Association	

The Government departments and scientific and industrial 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:—

Admiralty	Galvanized Hollow-ware Organization
Air Ministry	Ministry of Defence (Standardization of Drums and Metal Containers Sub-Committee of and Joint Non-warlike Stores Standardization Committee)
Association of British Insecticide Manufacturers	Ministry of Food
Association of British Sheep and Cattle Dip Manufacturers	Ministry of Labour and National Service (Factory Department)
Bakers Sundries Defence Committee	Ministry of Supply
British Disinfectant Manufacturers' Association	Ministry of Transport
British Plastics Federation	Oil Companies Materials Committee.
Closure Manufacturers' Association	
Council of British Manufacturers of Petroleum Equipment	

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Foreword

This British Standard requires reference to the following standard:—

BS 192, *B.S.W. and B.S.F. open-ended carbon steel spanners*.

This British Standard supersedes BS 670:1936, "*Welded mild steel drums*" and BS 829:1939, "*Mild steel drums for inflammable liquids*," and is the first of a new series of British Standards for metal drums.

BS 670 was originally prepared at the joint request of the Association of British Chemical Manufacturers and the British Chemical Plant Manufacturers' Association. It covered drums for liquids which do not flash below 73 °F. (22.7 °C.) or develop a vapour pressure of more than 20 lb/sq. in. absolute below 45 °C. (113 °F.) and included provisions for corrosive and heavy liquids.

The preparation of BS 829 was undertaken at the request of the same two organizations as well as the petroleum industry. The standard covered drums for most inflammable liquids not completely miscible with water and flashing below 73 °F. when tested in accordance with the requirements of the Petroleum (Consolidation) Act, 1928, and represented an advance in the technique of transporting petroleum products of an inflammable nature. As a result of extensive tests carried out by the railways and the oil companies it was found possible to standardize lighter drums than those previously in use.

In arriving at the requirements for the constructional strength of the drum the conditions of transport normally associated with returnable packages were taken into consideration.

The present revision and amalgamation of these two standards has become necessary because of a demand from users that a wider range of drums should be specified, and that its details should be simplified.

In view of the alternative methods of construction frequently used for drums having bodies thinner than 18 B.G., such drums are omitted from the standard.

It is pointed out that, although compliance with this British Standard will ensure satisfactory drums, the continuance of their serviceability will depend on systematic and periodic inspection and maintenance.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, 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 covers heavy duty welded mild steel drums with fixed ends, with capacities from 5–90 imperial gal. It does not apply to the special drums required for the storage and conveyance of the following liquids:—

carbon disulphide¹⁾

any liquid not complying with the pressure test described in the Appendix.

The standard also covers the 44 imperial gallon drum used by the petroleum industry.

2 Materials (body, ends, hoops and bands)

a) *Quality*. The drums shall be made from thoroughly annealed good commercial quality low carbon mild steel sheets. End bands and rolling hoops shall be made of low carbon steel of good welding quality.

b) *Thickness*. The thickness of the sheet metal used for the body and the end of the drums shall conform to the dimensions given in Table 1. The permissible variation in each gauge shall be as specified in BS 1449 “Steel plate, sheet and strip”.

3 Construction and workmanship

a) *Body*. The body of the drums shall be made from a single sheet of metal.

b) *Ends*. The ends, after being flanged to the appropriate depth, shall be a good fit in the body of the drum.

c) *Welding*. All drums shall be welded by a suitable welding process.

d) *Rolling hoops and beads*. Drums under 20 imperial gal. in nominal capacity shall normally be supplied with a plain body, but if required by the purchaser two rolling hoops, not less than $\frac{5}{8}$ in. deep, shall be pressed out from the body of the drum.

Round the body of drums of 20 imperial gal. and over nominal capacity shall be fitted two $1\frac{1}{2}$ in. $\times$ 1 in. “T” section mild steel rolling hoops, weighing 2 lb/ft, or where agreed between manufacturer and customer there shall be pressed out from the body of the drum two rolling hoops not less than $\frac{3}{4}$ in. deep. The “T” section mild steel rolling hoops shall be shrunk on or, where required, secured by means of a small bead formed in the body of the drum on each side of the rolling hoop.

NOTE The latter method is not recommended for galvanized drums.

e) *Reinforcement*. The circumferential junction of the body and ends shall be reinforced with mild steel bands of either lipped or convex feather edge section, as specified in Clause 4 (see Figure 1).

f) *Closures*. The drums shall be fitted with screw bungs, flanges and washers as specified in Clause 7.

4 Reinforcement

The circumferential seam at each end of the drum shall be strengthened by either lipped or convex feather edge section bands, made from mild steel bars of the type and dimensions shown below:—

Drums under 20 imperial gal. nominal capacity

Lipped section external bands $1\frac{3}{4}$ in. $\times$ $\frac{3}{8}$ in. $\times$ $\frac{5}{8}$ in. as Type A.

or

Convex section external bands 1 in. $\times$ $\frac{1}{4}$ in. as Type C.

Drums 20 imperial gal. nominal capacity and over

Lipped section external bands $1\frac{3}{4}$ in. $\times$ $\frac{3}{8}$ in. $\times$ $\frac{5}{8}$ in. as Type A.

or

Convex section external bands	$1\frac{1}{2}$ in. $\times$ $\frac{3}{8}$ in.	} as Type B.
Convex section internal bands	1 in. $\times$ $\frac{1}{4}$ in.	

When Type A construction is used the body and ends of the drum shall be welded together by a suitable process and the external lipped section band shrunk into position.

When Type B or C construction is used the body, ends and convex section bands shall be welded together.

¹⁾ The construction of drums for carbon disulphide is specified in Statutory Rules and Orders 1935, No. 283, 1st Schedule.