

Precast concrete flags, kerbs, channels, edgings and quadrants —

Part 1: Specification

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- Association of County Councils
- Association of London Borough Engineers and Surveyors
- Association of Metropolitan Authorities
- British Aggregate Construction Materials Industries
- British Civil Engineering Test Equipment Manufacturers' Association
- British Precast Concrete Federation Ltd.
- Cement and Concrete Association
- Cement Makers' Federation
- Concrete Society
- County Surveyor's Society
- Department of Transport (Highways)
- Institution of Civil Engineers
- Institution of Highways and Transportation
- Institution of Structural Engineers
- Interlocking Paving Association
- Landscape Institute
- Milton Keynes Development Corporation
- National Paving and Kerb Association
- Royal Institute of British Architects
- Sand and Gravel Association Limited
- Scottish Development Department
- Society of Chemical Industry

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Foreword

This Part of BS 7263 has been prepared under the direction of the Technical Sector Board for Building and Civil Engineering and supersedes BS 7263-1:1990, which is withdrawn.

This edition introduces technical changes only. It does not reflect a full review or revision of the standard which will be undertaken in due course.

There is no requirement in this standard for conditioning units, i.e. adjusting the moisture content, before carrying out the transverse strength test. This is because preliminary work has not indicated a regime which gives consistent results. However, investigations are continuing and it is anticipated that requirements for conditioning will be added in due course.

A spalling problem with kerbs has occurred in some parts of Scotland but at present there is insufficient data to be able to define the type and magnitude of the defects which could cause failure. Trials are being carried out using a test that reveals internal fissures which can occur during kerb manufacture. Many of the kerbs recognized as having this problem are of sections not included in this British Standard.

Due to difficulties in establishing an effective air entrainment level for wet cast flags (see annex E) these products have been omitted for the time being.

Requirements for the dimensions of surface features on tactile flags have been included. These flags are intended for use at pedestrian crossings, where they may be located by the sense of touch as well as sight.

Specifiers should be aware that pavements used for both vehicular and pedestrian traffic may polish in a similar manner to carriageways, although experience over the last 24 years with flags which conformed to BS 368 has shown this to be a rare occurrence.

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 18, 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 Part of BS 7263 specifies requirements for the following precast concrete products:

- a) wet pressed and semi-dry flags (see annex E);
- b) kerbs;
- c) channels;
- d) edgings;
- e) quadrants.

These precast concrete products, referred to as a product or products in this Part of BS 7263, are intended for use in the construction of carriageways and footways laid in accordance with BS 7263-2.

NOTE 1 Annex D gives recommendations on information to be given to a manufacturer in an enquiry or order.

NOTE 2 Annex F gives guidance on suitability of paving flags for various uses.

NOTE 3 Precast concrete paving blocks are covered by BS 6717.

2 References

2.1 Normative references

This Part of BS 7263 incorporates, by reference, provisions from specific editions of other publications. These normative references are cited at the appropriate points in the text and the publications are listed on page 18. Subsequent amendments to, or revisions of, any of these publications apply to this Part of BS 7263 only when incorporated in it by updating or revision.

2.2 Informative references

This Part of BS 7263 refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on the inside back cover, but reference should be made to the latest editions.

3 Definitions

For the purposes of this Part of BS 7263 the definitions given in BS 6100-1.5.1 apply, together with the following.

3.1

nominal size

size which identifies a component

3.2

work size

target size of a building component specified for its manufacture

3.3

secondary processing

manufacturing process carried out after basic manufacture, before or after hardening, on the whole unit or any surface

NOTE Secondary processing may be used to provide flat (e.g. ground) or textured (e.g. blasted) surfaces.

3.4

tactile flag

flag, provided with a profiled surface, used to give warning of hazards, or to enable locations to be recognized, e.g. a crossing flag

4 Binders

Products shall be made using one or more of the binders conforming to the appropriate British Standards as given in Table 1.

Table 1 — Binders

Type of binder	Standard to be complied with
Portland cement	BS 12:1991
Portland blastfurnace cements	BS 146:1991
Sulfate-resisting Portland cement	BS 4027:1991
Portland pulverized-fuel ash cements	BS 6588:1991
Pulverized-fuel ash ^a	BS 3892-1:1982
Ground granulated blastfurnace slag for use with Portland cement ^b	BS 6699:1992
High slag blastfurnace cement	BS 4246:1991
^a Where pulverized-fuel ash is used the proportions and properties of the combination with Portland cement shall conform to BS 6588:1991.	
^b Where ground granulated blastfurnace slag is used the proportions and properties of the combination with Portland cement shall conform to BS 146:1991 or BS 4246:1991.	

5 Aggregates

Products shall be made using one or more of the aggregates conforming to the appropriate British Standards as given in Table 2.

Table 2 — Aggregates

Type of aggregate	Standard to be complied with
Natural aggregates	BS 882:1992 (except grading requirements in clause 5)
Air-cooled blastfurnace slag	BS 1047:1983 (except grading requirements in 4.8)
Pulverized-fuel ash	BS 3892-1:1982 and BS 3892-2:1984
Ground granulated blastfurnace slag	BS 6699:1992
NOTE The use of recycled material is permitted.	

6 Water

The water shall be drinking quality or shall conform to BS 3148:1980 or shall be recycled process water free from visual contamination by oil.

7 Admixtures

Proprietary accelerating, retarding and water reducing agents shall conform to BS 5075-1:1982 and BS 5075-2:1982.

Where admixtures are formulated from a combination of materials, including those specified above, then the accelerating, retarding and water reducing ingredients, where they are included in such combinations, shall conform to BS 5075-1:1982 and BS 5075-2:1982.

Any other admixtures employed shall be supported by evidence confirming that no adverse effect on the properties required by this standard will result.

8 Pigments

Pigments supplied in powder form shall conform to BS 1014:1975. Where pigments are used in the preparation of suspensions or slurries the pigments shall conform to BS 1014:1975.

9 Air content

The concrete used in kerbs, channels, quadrants and edgings produced by the wet cast process (see annex E) shall have the following entrained air contents, measured in accordance with BS 1881-106:1983:

- products with 14 mm nominal maximum aggregate size: $6\% \pm 1.5\%$;
- products with 20 mm nominal maximum aggregate size: $5\% \pm 1.5\%$.

10 Finish

Products described as “natural” shall contain no pigment (see D.1 b). Where products are made with two-part mixes the surface layer shall be not less than 12 mm thick for flags or not less than 25 mm thick for all other products. The surface layer shall be produced as an integral part of the product.

All arrises that will be visible after laying shall be without nibs and fins.

Flags shall be produced with plane, profiled or secondary processed surfaces.

NOTE Profiled surfaces may be functional, (e.g. tactile) or decorative (e.g. riven).

11 Dimensions and tolerances

11.1 Dimensions

11.1.1 Flags

Sizes of flags shall be as given in Table 3.

Table 3 — Flag sizes

Dimensions in millimetres

Flag type	Nominal size	Work size	Thickness
A	600 × 450	598 × 448	50 or 63
B	600 × 600	598 × 598	50 or 63
C	600 × 750	598 × 748	50 or 63
D	600 × 900	598 × 898	50 or 63
E	450 × 450	448 × 448	50 or 70
F	400 × 400	398 × 398	50 or 65
G	300 × 300	298 × 298	50 or 60
NOTE Tactile flags type T are normally available in sizes of flag types E, F and G. Tactile crossing flags are thus designated type TC/E, TC/F or TC/G depending on their size.			

Tactile crossing flags shall be provided with flattened domes on the wearing surfaces, which shall have the dimensions and spacings shown in Figure 1.

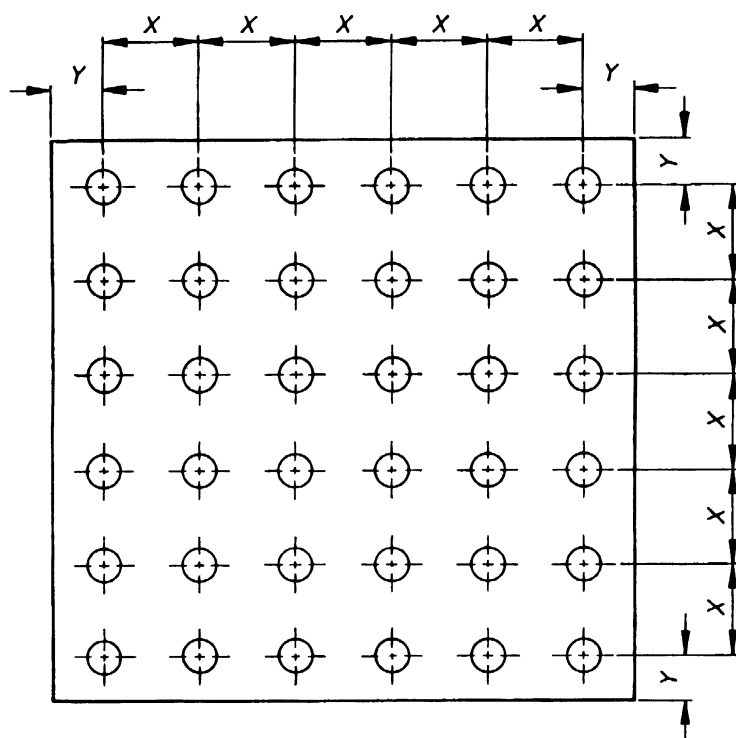
A wearing surface edge chamfer shall be provided on flag types E, F and G with a flat surface.

NOTE Wearing surface edge chamfers may be provided on profiled or secondary processed flags.

The manufacturer shall declare the dimensions of chamfers in all cases in the order horizontal then vertical.

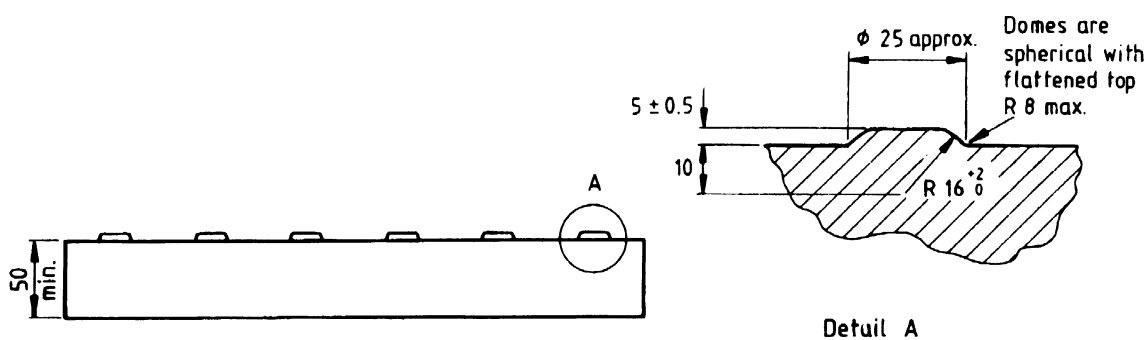
11.1.2 Kerbs, channels and edgings

Kerbs, channels and edgings shall have the sizes shown in Figure 2, Figure 3 and Figure 4 and shall have a length in the range 450 mm to 915 mm. The length shall be measured along the vertical contact face between the kerb and channel. The radius of the vertical contact face of a kerb or channel shall be as given in Table 4.



Tactile crossing flag type	Dimension	
	X	Y
TA/E	64	33
TA/F	66.8	33
TA/G	75	37.5
Tolerance: ± 2		

a) Plan



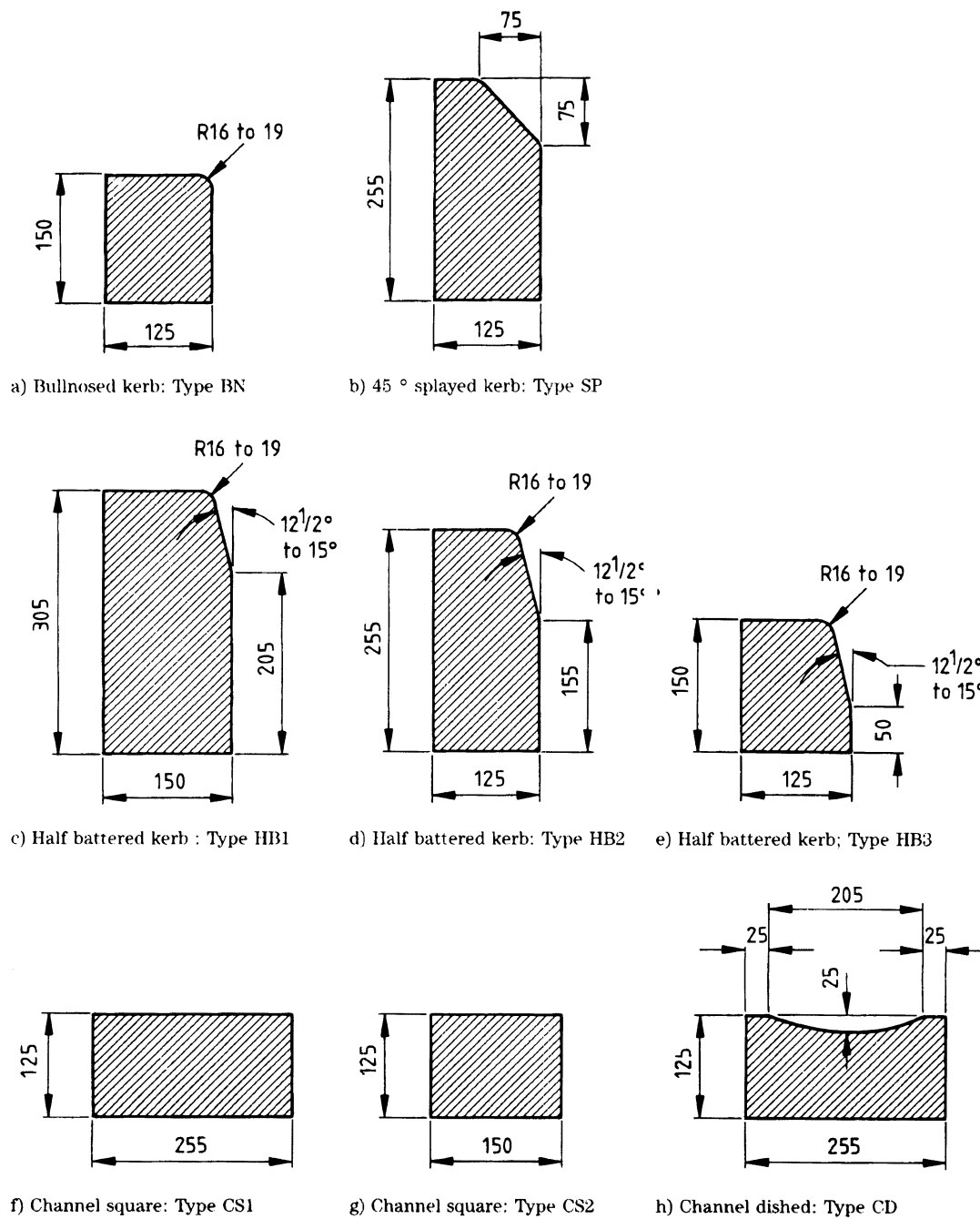
b) Elevation

Figure 1 — Tactile crossing flag

Table 4 — External and internal radii for kerbs and channels

Dimensions in metres

External only		Internal and external			
1.0	2.0	3.0	4.5	6.0	7.5
		9.0	10.5	12.0	



All dimensions are in millimetres.

Figure 2 — Bullnosed, splayed and half battered kerbs and square and dished channels