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Edition 2.1

Any reference to SABS 927 is deemed
to be a reference to this standard
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SOUTH AFRICAN NATIONAL STANDARD

Precast concrete kerbs, edgings and channels

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SANS 927:2003
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Table of changes

Change No.	Date	Scope
Amdt 1	2003-07-04	Amended to correct the figures for minimum transverse strength in table 1.

Foreword

This South African standard was approved by National Committee STANSA TC 5120.61, *Construction standards*, in accordance with procedures of Standards South Africa, in compliance with annex 3 of the WTO/TBT agreement.

This edition cancels and replaces the second edition (SABS 927:2001).

A vertical line in the margin shows where the text has been modified by amendment No. 1.

Annex A forms an integral part of this standard. Annex B is for information only.

Contents

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Precast concrete kerbs, edgings and channels

1 Scope

This standard specifies the dimensional and physical requirements for various types of precast concrete kerbs, edgings and channels intended for use in the construction of roads and footpaths.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards can be obtained from Standards South Africa.

ASTM C494, *Standard specification for chemical admixtures for concrete.*

SANS 1083 (SABS 1083), *Aggregates from natural resources - Aggregates for concrete.*

SANS 1491-1 (SABS 1491-1), *Portland cement extenders - Part 1: Ground granulated blast-furnace slag.*

SANS 1491-2 (SABS 1491-2), *Portland cement extenders - Part 2: Fly ash.*

SANS 1491-3 (SABS 1491-3), *Portland cement extenders - Part 3: Condensed silica fume.*

SANS 50197-1/EN 197-1 (SABS EN 197-1), *Cement - Part 1: Composition, specifications and conformity criteria for common cements.*

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1
acceptable
acceptable to the authority administering this standard or to the parties concluding the purchase contract, as relevant

3.2
defective
a product that fails in one or more respects to comply with the requirements of the standard

3.3
face (of kerb, edging or channel)
a surface that is exposed after the product has been set in place for use

3.4
product
a kerb, an edging or a channel that is made from precast concrete

4 Requirements

4.1 Materials

4.1.1 Cement

The cement used shall comply with the requirements of SANS 50197.

4.1.2 Aggregate

Aggregates shall comply with the requirements of SANS 1083.

4.1.3 Water

The water used in the mixing of the concrete shall be free from impurities that may impair the strength or durability of the concrete.

4.1.4 Admixtures

If applicable, admixtures shall comply with the requirements of ASTM C494, SANS 1491-1, SANS 1491-2 or SANS 1491-3.

4.2 Type

The type of kerb, edging or channel shall be one of those given in tables 1, 2 or 3, as required (see annex A).

4.3 Appearance

All products shall comply with the following:

a) they shall be free from cracks other than hairline cracks;

b) the faces shall be free from visible twist and dents;

c) arrises shall be truly formed and shall conform to those in the figures in tables 1, 2 or 3, as relevant;

d) there shall be no patching of defective surfaces or edges; and

e) the colour of the products shall be uniform.

4.4 Dimensions

All dimensions shall conform to the appropriate values given in tables 1, 2 or 3, subject to a tolerance of ± 3 mm. Unless otherwise required (see annex A), the length of units shall be 1 m ± 3 mm.

Straightness: The deviation from straightness of the longitudinal edges of the product shall not exceed 3 mm per metre length.

Squareness: The deviation from squareness of units shall not exceed 1 mm per 200 mm.

Radii: Radii shall be as specified in tables 1, 2 or 3, as relevant.

4.5 Transverse strength

When determined in accordance with 7.3, the average failing load shall be not less than the appropriate value given in tables 1, 2 or 3.

5 Identification of product

Each consignment of kerbs, edgings or channels shall be accompanied by a dispatch or consignment note that contains the following information:

a) the manufacturer's name or trade name or trade mark;

b) the date of manufacture (which may be a serial number or may be given in code);

c) the type of kerb, edging or channel (see 4.2); and

d) the dimensions if applicable.

6 Sampling

An acceptable sampling method of test specimens shall be used. (See annex B.)

7 Inspection and methods of test

7.1 Inspection

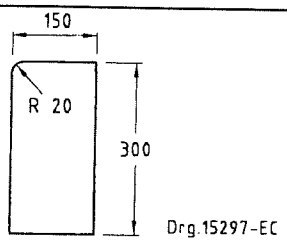
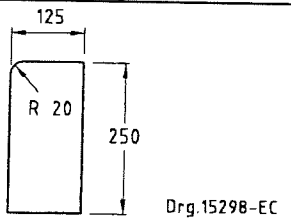
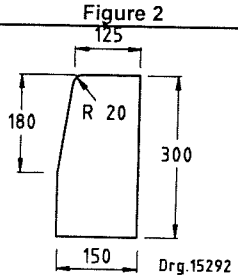
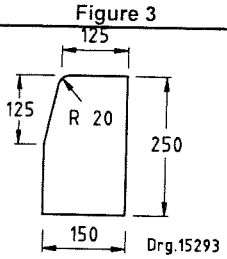
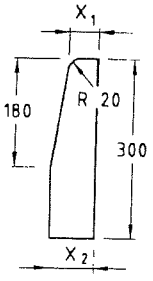
Inspect each product for compliance with 4.3.

7.2 Dimensions

By using suitable means and sufficient accuracy, measure the dimensions and radii given in tables 1, 2 and 3, and measure the straightness and the squareness of the test specimens.

Table 1 — Sections, dimensions and strength of kerbs

Dimensions in millimetres

1 Type	2 Sections and dimensions	3 Minimum transverse strength kN
Rectangular	 Figure 1	22
	 Figure 2	13
Half-battered	 Figure 3	22
	 Figure 4	19
	 Figure 5 **Size** / X_1 / X_2 a: 62 / 75 b: 75 / 100 **Size** / **Strength** a: 5,5 b: 11	

Amdt 1

Table 1 *(concluded)*

Dimensions in millimetres

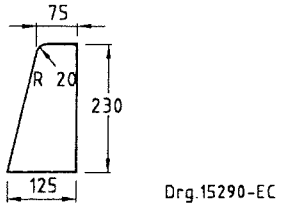
<table>
<tr><th>1</th><th>2</th><th>3</th></tr>
<tr><td>Type</td><td>Sections and dimensions</td><td>Minimum transverse strength
kN</td></tr>
<tr><td>Battered</td><td> 

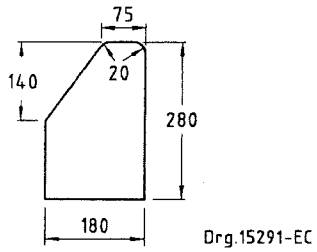
Figure 6</td><td>8</td></tr>
<tr><td rowspan="3">Mountable</td><td> 

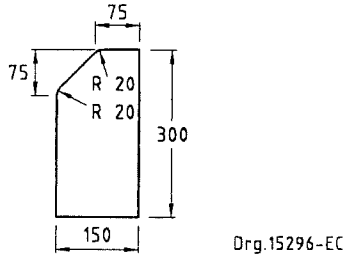
Figure 7</td><td>23</td></tr>
<tr><td> 

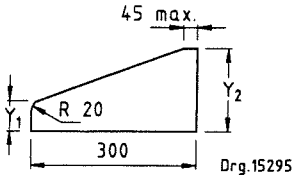
Figure 8</td><td>21</td></tr>
<tr><td> 

Figure 9
<table>
<tr><th>Size</th><th>Y_1</th><th>Y_2</th></tr>
<tr><td>c</td><td>50</td><td>150</td></tr>
<tr><td>d</td><td>75</td><td>175</td></tr>
<tr><td>e</td><td>100</td><td>200</td></tr>
<tr><td>f</td><td>125</td><td>225</td></tr>
</table></td><td><table>
<tr><th>Size</th><th>Strength</th></tr>
<tr><td>c</td><td>11</td></tr>
<tr><td>d</td><td>15,5</td></tr>
<tr><td>e</td><td>20,5</td></tr>
<tr><td>f</td><td>26,5</td></tr>
</table></td></tr>
<tr><td colspan="3">NOTE The tolerance of longitudinal and radial dimensions is ± 3 mm.</td></tr>
</table>

Amdt 1

Table 2 — Sections, dimensions and strength of edgings

Dimensions in millimetres

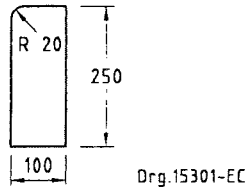
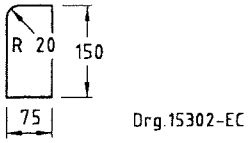
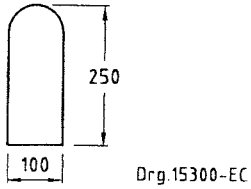
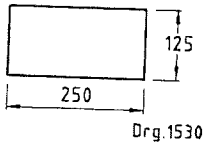
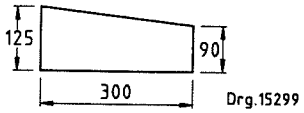
1	2	3
Type	**Sections and dimensions**	**Minimum transverse strength** kN
Rectangular	 **Figure 10**	9
	 **Figure 11**	2,5
Half-round	 **Figure 12**	9
NOTE The tolerance of longitudinal and radial dimensions is ± 3 mm.		

Table 3 — Sections, dimensions and strength of channels

Dimensions in millimetres

1	2	3
Type	**Sections and dimensions**	**Minimum transverse strength kN**
Rectangular	 **Figure 13**	13
Tapered	 **Figure 14**	11
NOTE The tolerance of longitudinal dimensions is ± 3 mm.		

7.3 Transverse strength

7.3.1 Apparatus

7.3.1.1 Testing machine

The testing machine shall

a) be of sufficient capacity to be capable of applying a flexural load at a rate of 20 N per minute per mm of width of the specimen,

b) be accurate to within 1,5 % of the applied test load,

c) have two steel bearing platens with hardened faces,

d) have an upper platen with a spherical seating, a bearing face width of 50 mm and a length that is at least equal to the length of the specimen, and

e) have a lower platen fitted with two level and parallel self-aligning bearers of 40 mm diameter, 750 mm apart (centre to centre), and of length at least equal to the length of the specimen.

7.3.1.2 Hardwood fillet for rectangular specimens. The width shall be 50 mm and the length shall be the same as the length of the specimen. The fillet shall be in contact with both the upper platen and the specimen over the full length of the specimen.

7.3.1.3 Hardwood wedge for battered, mountable or half-round specimens. The face shall be complementary (i.e. so shaped that the cross-section of the wedge-and-specimen assembly is rectangular) and provided with an endplate (or an overhang of the wedge) to prevent slipping.

7.3.2 Preparation of test specimens

Before testing, immerse 3 specimens in water for 24 h ± 2 h at a temperature of 14 °C to 26 °C.

7.3.3 Procedure

a) Support the specimen on the bearers on the lower platen (with a wide plane down if applicable).

b) Position the bearing face of the upper platen at midspan of the specimen and across the upper surface of the specimen parallel to the supporting bearers.

c) Interpose the hardwood fillet or wedge between the platen and the specimen. A bedding of soft board can be used for proper contact between the fillet and the specimen if necessary.

d) Apply the load at a rate of 20 N per minute per millimetre width of the specimen until the specimen fails.

e) Record the maximum load applied.

f) Repeat (a) to (e) for the other two specimens.

7.3.4 Calculation

Report the average of the results so obtained as the average failing load of the sample and check for compliance with 4.5. If the failing load of any individual specimen is less than 80 % of the specified average failing load, deem the sample to be defective.

Annex A
(normative)

Notes to purchasers

The following requirements shall be specified in tender invitations and in each order or contract:

a) the type (see 4.2);

b) the dimensions (see tables 1, 2 and 3); and

c) the overall length, if less than 1 m (see 4.4).

Annex B
(informative)

Quality verification of precast concrete kerbs, edgings and channels

B.1 When a purchaser / authority requires ongoing verification of the quality of the kerbs, edgings and channels, it is suggested that, instead of concentrating solely on evaluation of the final product, he also direct his attention to the manufacturer's quality system. In this connection it should be noted that SANS 9001 covers the provision of an integrated quality system.

B.2 If no information about the implementation of quality control or testing during manufacture is available to help in assessing the quality of a consignment, and a purchaser / authority wishes to establish by inspection and testing of samples of the final product, whether a consignment of the product complies with this standard, a sampling plan based on applicable statistical principles should be agreed upon between the supplier and the purchaser / authority.

It should be noted that

a) such a sampling plan applies only to ready-for-use products sampled in accordance with an agreed procedure, and

b) if another sampling plan is to be used, a clear statement should be made as to the objective of the sampling as described in the method.

Bibliography

SANS 9001/ISO 9001 (SABS ISO 9001), *Quality management systems - Requirements.*