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CKS

Rubber waterstops

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Notice

Except for purposes of tender or contract, no person may claim or create the impression that commodities comply with this specification.

Table of changes

Change No.	Date	Scope
Amdt 1	2011	Amended to update referenced standards.

Foreword

This coordinating specification is a technical agreement developed in accordance with SANS 1-1, and approved by National Committee SABS TC 45, *Rubber and rubber products.*

This document was published in December 2011.

This document supersedes CKS 388:1973 (first edition).

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

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0 Applicable standards

0.1 The latest issues of the following standards form part of this specification:

ISO 37, *Rubber, vulcanized or thermoplastic – Determination of tensile stress-strain properties.*

ISO 48, *Rubber, vulcanized or thermoplastic – Determination of hardness (hardness between 10 IRHD and 100 IRHD).*

ISO 188, *Rubber, vulcanized or thermoplastic – Accelerated ageing and heat resistance tests.*

ISO 1431-1, *Rubber, vulcanized or thermoplastic – Resistance to ozone cracking – Part 1: Static and dynamic strain testing.* **Amdt 1**

ISO 1817, *Rubber, vulcanized – Determination of the effect of liquids.* **Amdt 1**

SANS 5872, *Compression set of vulcanized rubbers under constant deflection.* **Amdt 1**

1 Scope

1.1 This specification covers four types of rubber waterstops intended for use as water seals in construction and expansion joints in concrete structures where movement of up to 15 mm is expected.

NOTE The following requirements must be specified in tender invitations and in the order or contract:

a) The type (see 2.2)

b) The nominal size (see 2.3.2)

2 Requirements

2.1 Material

The waterstops shall be of a virgin high grade natural rubber to which suitable compounds have been added to enable sound extrusions to be made. They shall have been so vulcanized as to ensure long-term service.

2.2 Type

Waterstops shall be one of the following types as specified by the purchaser:

Type 1. Internal centre bulb type. (Intended for use in expansion joints and to be set in the centre of the concrete member).

Type 2. Internal dumb-bell type. (Intended for use in normal construction joints where no expansion or contraction is expected and to be set in the centre of the concrete member).

Type 3. Rearguard centre bulb type. (Intended for use in expansion joints and to be positioned on the surface of the concrete member adjacent to supporting formwork).

Type 4. Rearguard type. (Intended for use in normal construction joints where no expansion or contraction is expected and to be positioned on the surface of the concrete member adjacent to supporting formwork).

2.3 Design and dimensions

2.3.1 Design

The design of waterstops shall be similar to the appropriate typical design shown in figures 1 – 4 and shall be such that a waterstop is an extrusion that has, at each edge of the web, a solid anchor rib and in the cases of types 1 and 3, a hollow expansion rib in the centre of the web. Additional anchor ribs may be incorporated along the web.

In types 1 and 2 the ribs shall be centred on the web, and the web and one outer anchor rib may be split as shown in figure 5.

In types 3 and 4 one face shall be straight and free from anchor and expansion ribs.

2.3.2 Dimensions

The dimensions of waterstops shall conform to the values given in table 1 appropriate to the nominal size (overall width) of waterstop specified by the purchaser.

NOTE The ribs shown in figures 1 – 4 are examples only and are not intended to restrict the use of shapes other than those illustrated. The profiles actually used shall be acceptable to the purchaser.

Table 1 — Dimensions of waterstops

1	2	3	4	5	6	7
Dimension	**Requirement** mm, min.					
	Nominal size of waterstop mm					
	110	**150**	**225**	**265**	**300**	**350**
a) **All types**						
Overall width	110	150	225	265	300	350
Web thickness	6,0	6,0	9,5	9,5	9,5	9,5
b) **Types 2 and 4**						
Height of outer anchor ribs	15,5	15,5	19	25	25	25
c) **Types 1 and 3**						
Overall width of expansion rib	28	28	38	38	38	38
Height of outer anchor ribs	15,5	19	19	25	25	25

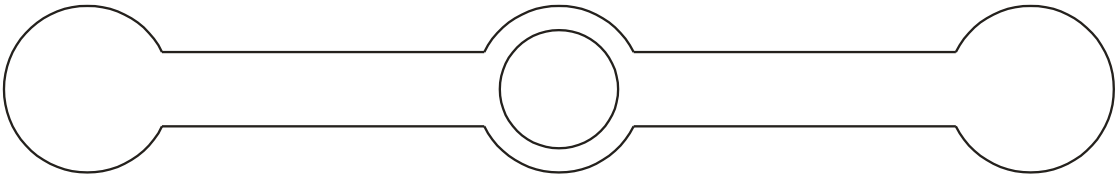

Figure 1 — Internal centre bulb type (type 1)

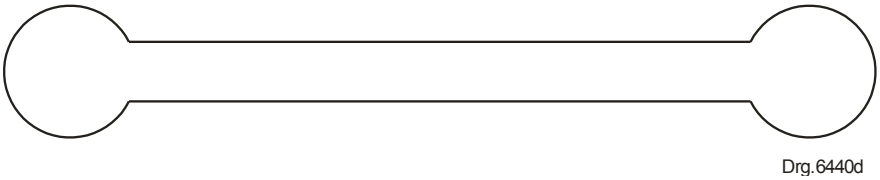

Figure 2 — Internal dumb bell type (type 2)

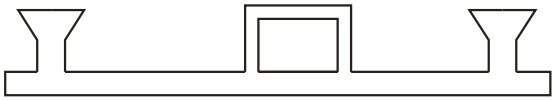

Figure 3 — Rearguard centre bulb type (type 3)

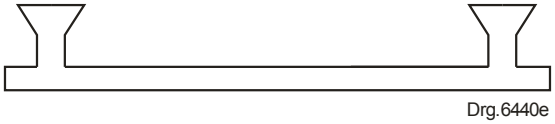

Figure 4 — Rearguard type (type 4)

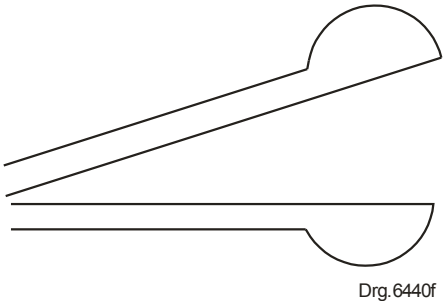

Figure 5 — Split bulb (types 1 and 2)

2.4 Workmanship

Waterstops shall be free from blisters, splits, flow lines, porosity, holes, and other defects that may affect their serviceability; the surfaces shall be smooth.