UDC 615.477.26: 685.381

CKS 112-1972

CENTRAL STANDARDIZATION COMMITTEE

SPECIFICATION

FOR

METAL CRUTCHES FOR ADULTS

First Revision

Approved by the

CENTRAL STANDARDIZATION COMMITTEE

August 1972

Published by the

SOUTH AFRICAN BUREAU OF STANDARDS

ISBN 0 626 00805 0

Gr 5

NOTICE

This specification has been approved by the Department of Trade and Industry.

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

First Revision: August 1972
This specification supersedes CKS 112-1968

Obtainable from the

SA BUREAU OF STANDARDS
Private Bag X191
Pretoria
Republic of South Africa
0001

Telegrams : Comparator, Pretoria
Telex : 321308SA
Fax : (012) 3441568

Printed in the Republic of South Africa by the
South African Bureau of Standards

SPECIFICATION

for

METAL CRUTCHES FOR ADULTS
(Metric Units)

0. APPLICABLE STANDARDS

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

BS 1474	Wrought aluminium, bars, extruded round tube and sections
BS 1615	Anodic oxidation coatings on aluminium
SABS 657	Steel tubes for general engineering purposes
SABS 679	Zinc chromate primers for steel
SABS 728	Electroplated coatings of nickel and chromium (Metric units)
SABS 763	Hot-dip (galvanized) zinc coatings (other than on sheet and wire) (Metric units)
SABS 783	Baking enamels

1. SCOPE

1.1 This specification covers adjustable metal crutches for adults.

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

a) Type of crutch (see 3.1)
b) The material of metal components (see 3.2.1)
c) The colour of axilla support cushion covers, hand grips and crutch shoes (see 3.2.3, 3.2.4, 3.2.5)
d) Type of elbow support (see 3.5.5)
e) In the case of axilla type crutches, the type of hand-grip (see 3.5.6)
f) The finish (see 3.7)

2. DEFINITIONS

2.1 For the purposes of this specification the following definition shall apply:

Acceptable. Acceptable to the purchaser.

ISBN 0/626/00805/0

3. REQUIREMENTS

3.1 TYPE. Crutches shall be of the axilla type (see Figure 1) or the elbow type (see Figure 2), as specified by the purchaser.

3.2 MATERIALS

3.2.1 Metal Components. Uprights and hand pieces shall be made from steel tubing or aluminium tubing as specified by the purchaser.

Steel tubing shall be of a quality at least equal to that of Grade 45 Class D2T2 of SABS 657.

Aluminium tubing shall be of a quality at least equal to that of Type E1B of BS 1474.

Axilla supports and metal elbow supports shall be of steel or aluminium plate (as relevant) of acceptable quality.

3.2.2 Axilla Support Cushions. Axilla support cushions shall be of an acceptable resilient material that allows them to comply with the requirements of 3.8.2(a).

3.2.3 Axilla Support Cushion Covers. Axilla support cushion covers shall be of an acceptable hard-wearing absorbent material of colour as specified by the purchaser.

3.2.4 Hand Grips. Hand grips shall be of an acceptable plastics material (of the colour as specified by the purchaser) that is resistant to perspiration and does not stain the hands.

3.2.5 Crutch Shoes. Crutch shoes shall be of a rubber (of the colour as specified by the purchaser) that has acceptable wearing properties and allows the shoes to comply with the requirements of 3.8.3.

3.3 SHAPE AND DIMENSIONS. The shape and dimensions of crutches shall be generally similar to those shown in Figure 1 or Figure 2, as relevant, and the range of extensibility shall be not less than that shown in the appropriate figure.

3.4 MASS. The mass of each crutch shall not exceed 1,25 kg in the case of axilla type crutches and 1 kg in the case of elbow type crutches.

3.5 CONSTRUCTION

3.5.1 Adjustment

a) Provision shall be made for the simple adjustment of each crutch

by the slackening and /or removal of not more than one threaded fastener or by the depression of two spring-loaded pins. The design of this adjustment shall be such as to prevent accidental operation.
b) Uprights shall slide freely over the full range of extensibility and shall be easily separable for cleaning or renewal. In any extension within the range of adjustment, the clearance between the components of an upright shall not exceed 0, 6 mm.

3. 5. 2 Axilla Supports

a) Axilla supports shall be firmly secured to the upright and any play between these components shall be acceptable.
b) Axilla support cushions shall be firmly secured to the axilla support, and their covers shall be held in position by an elastic surround.

3. 5. 3 Hand Pieces. Hand pieces shall be rigidly secured to the upright.

3. 5. 4 Crutch Shoes. Crutch shoes shall be so secured to the lower end of the upright that it is not possible to remove them by manual twisting and pulling.

3. 5. 5 Elbow Supports. Elbow supports shall be one of the following two types, as specified by the purchaser:

a) An open support (as shown in Figure 2(a)) that is rigidly secured to the crutch,
b) a spring clip support (as shown in Figure 2(b) that is so hinged to the crutch as to permit movement in the vertical plane but no movement in the horizontal plane.

3. 5. 6 Hand Grips. Hand grips of elbow type crutches shall be of the pistol-grip pattern, and hand grips of axilla type crutches of the pistol-grip or of the round pattern, as specified by the purchaser.

3. 6 WORKMANSHIP. Crutches shall be free from burrs and sharp edges that may cause injury to the user or damage to clothing.

3. 7 FINISH

3. 7. 1 General. Crutches shall be free from grease, oil, and other foreign matter when the finish is applied.

3. 7. 2 Uprights. Uprights shall have one of the following finishes, as appropriate, and as specified by the purchaser:

a) Steel tubing

1) Painted. One coat (having a dry film thickness of at least 20 μm)

of a zinc chromate primer that complies with the requirements for Type II, Grade 1, of SABS 679, followed by at least two coats (each having a dry film thickness of at least 20 µm) of a baking enamel that complies with the requirements for Type IV, of SABS 783 and of a colour as specified by the purchaser.
2) Chromium-plated. An electro-plated coating of nickel and chromium that complies with the requirements of SABS 728 for coatings (on steel) for No. 1 service conditions.
3) Galvanized. A hot-dip galvanized zinc coating that complies with the requirements of SABS 763 for coatings on Type B2 articles.

b) Aluminium tubing

1) Painted. A phosphate coating of mass at least 1, 0 g/m^2 followed by at least two coats (each having a dry film thickness of at least 20 µm) of a baking enamel that complies with the requirements for Type IV of SABS 783 and of a colour as specified by the purchaser.
2) Chromium-plated. A coating that complies with the requirements of SABS 728 for coatings (on aluminium) for No. 1 service conditions.
3) Anodized. An anodized coating that complies with the requirements for Grade AA 15 of BS 1615.

3. 7. 3 Axilla Supports. Axilla supports shall have a paint finish as in 3. 7. 2(a)(1).

3. 7. 4 Elbow Supports. Elbow supports shall have a paint finish as in 3. 7. 2(a)(1), or shall be coated with nylon or plastic (of thickness at no point less than 0, 5 mm), as specified by the purchaser.

3. 8 STRENGTH

3. 8. 1 Crutch. When a crutch is tested in accordance with 4. 1,

a) the maximum deflection shall not exceed 40 mm,
b) the crutch shall not break or become deformed,
c) the adjustment shall not slip, and
d) the play at any point shall not be unacceptable.

3. 8. 2 Axilla Support Cushions

a) Compression. When tested in accordance with 4. 2, the compression shall not exceed 65%.
b) Strength and fixing. When tested in accordance with 4. 3, the cover material shall show no sign of tearing and the cushion shall not become detached from the support at any point.

3. 8. 3 Crutch Shoes. When tested in accordance with 4. 4, the crutch shall not slip and the floor shall not be marked.

4. METHODS OF TEST

4.1 STRENGTH TEST. Extend the crutch to give maximum height above the ground of axilla or elbow (as relevant) and hand supports. Support the crutch as shown in Figure 4, and measure the maximum value of the deflection of the axis of the crutch when

a) a force of 1,1 kN is applied at points A and B (in turn) to axilla type crutches, and
b) in the case of elbow type crutches
1) a force of 1,1 kN is applied at point A,
2) a force of 220 N is applied at point C.

Check for compliance with the requirements of 3.8.1. Repeat the tests with the crutch adjusted to different extensions.

4.2 COMPRESSION TEST. Apply a cylinder, of outside diameter approximately 75 mm and mass 5 kg, to three points (in turn) on the axilla support cushion (see Figure 3) and determine the maximum compression expressed as a percentage of the original thickness. Check for compliance with the requirements of 3.8.2(a).

4.3 STRENGTH AND FIXING TEST. Grip the sides of the axilla support cushion between two flat plates of size 75 x 15 x 1,6 mm, invert the crutch, and suspend a mass of 2,5 kg from the plates. Repeat the test by gripping the cushion at two other points. Check for compliance with the requirements of 3.8.2(b).

4.4 SLIP AND MARKING TEST. Support the crutch as shown in Figure 4 on a polished linoleum floor. Suspend a mass of 22 kg from point A and allow the crutch (loosely supported) to lean over through an angle of at least 15^{o} from the vertical in the direction of the load. Check for compliance with the requirements of 3.8.3.

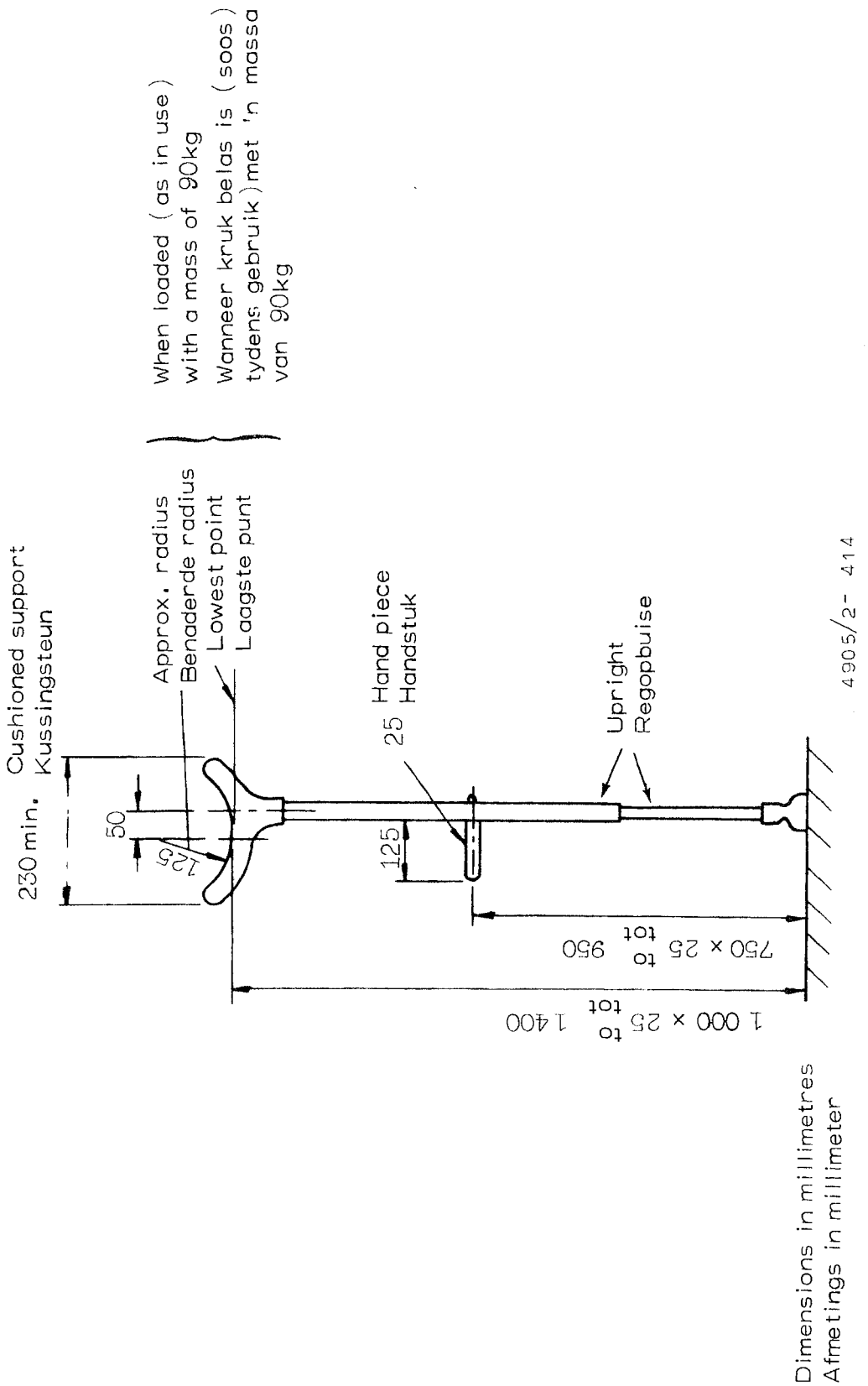


Fig. 1 – Axilla Type Crutch

Okselkruk

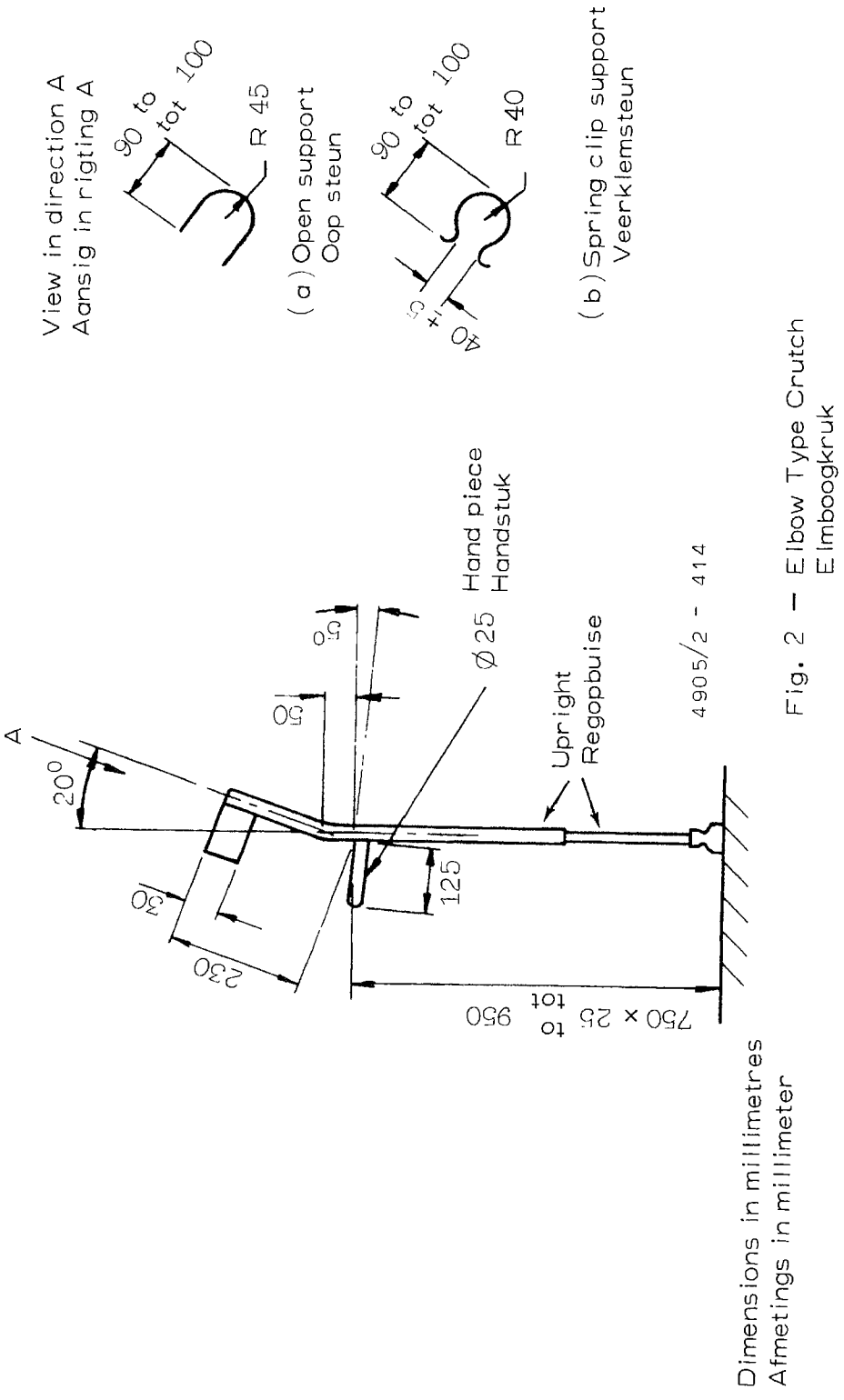


Fig. 2 – Elbow Type Crutch
Elmboogkruk

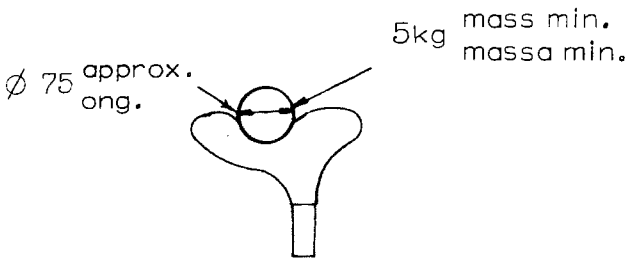
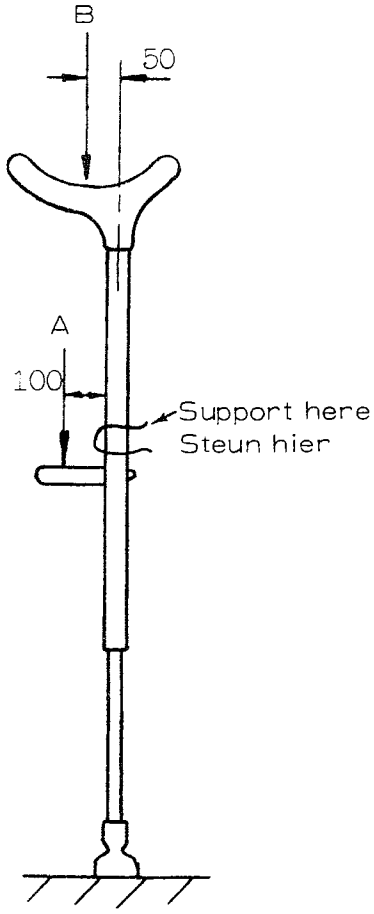
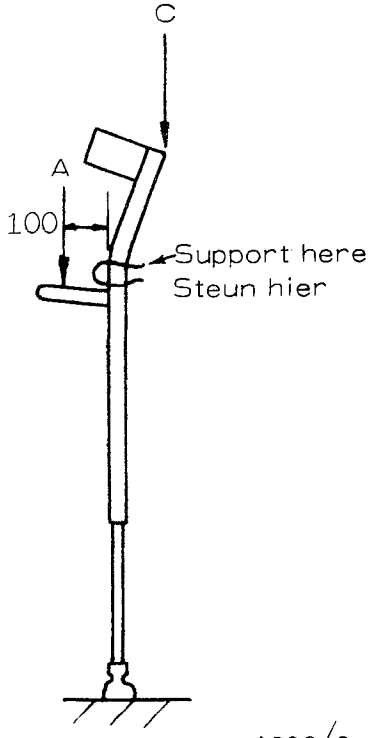


Fig. 3 – Compression Test
Druktoets

Dimensions in millimetres
Afmetings in millimeter





4906/2 - 414

Fig. 4 – Strength and Slip Tests
Sterkte- en Glytoets

© SABS. This non-printable standard is exclusively for approved users of the SABS' Complete Collection of Standards and Related Documents.