APPENDIX C

SPECIFICATION

for

LIFTING POLES FOR PATIENTS

0. APPLICABLE STANDARDS

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

CKS 447	High-low beds
CKS 635	Adjustable ward beds
SABS 521	Hospital beds and cots
SABS 657	Steel tubes for non-pressure purposes Part I: Steel tubes for scaffolding and for structural and general engineering purposes
SABS 728	Electroplated coatings of nickel and chromium

1. SCOPE

1.1 This specification covers the material, dimensional and constructional requirements for two types of patient-lifting poles intended for use with hospital beds.

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

a) The type (see 3.2)
b) For Type A, whether a stainless steel or mild steel pole is required (see 3.4)
c) For Type B and when a mild steel pole is required for Type A, whether a chromium-plated, or a powder-coated finish is required (see 3.7(c))
d) When relevant, the colour of the powder-coated finish (see 3.7(c))

2. DEFINITIONS

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

Acceptable. Acceptable to the purchaser.
Bow end. The head end of the bed where the bow and the two head-end legs of the bed are in continuity.
Directional satin finish. A finish obtained by so grinding the surface with fine abrasives (without subsequent polishing) as to leave a silky appearance, the abrasive marks running in the same general direction.
Size. In the case of round tubes, the outside diameter of the tube and in the case of square tubes, the outer length of a side of a cross-sectioned tube.

3. REQUIREMENTS

3.1 MATERIAL

3.1.1 Rolled Steel Sections and Rod. Rolled steel sections and rod shall be of a good quality mild steel and shall be free from cracks, fins, laminations and other defects.

3.1.2 Mild Steel Round Tubes. Mild steel round tubes shall comply with the relevant requirements for Grade 230 or Grade 250 of SABS 657: Part I.

3.1.3 Mild Steel Square Tubes. Mild steel square tubes shall be of good quality mild steel and shall be free from cracks, fins, laminations and other defects.

3.1.4 Stainless Steel. Stainless steel shall be 18/8 (AISI Type 304L) stainless steel, or other acceptable austenitic stainless steel of weldable quality.

3.1.5 Welding Electrodes and Filler Rods. Filler metal used in fusion welding and braze welding shall be such as will produce a joint complying with the requirements of 3.3.

3.1.6 Powder Coating. Powder coatings shall be based on a compounded epoxy resin that is suitable for application by a fluidized-bed process or an aerostatic spray process.

3.2 TYPES. The poles shall be one of the following types, as specified by the purchaser:

a) Type A poles intended for

1) cots for adults complying with the relevant requirements of SABS 521; and
2) older style ward beds (dimensionally similar to (1) above) but having the head-end bow frame and bed legs formed from one continuous tube (in one plane) and having a horizontal bracing tube of nominal outside diameter 25 mm welded between the legs approximately 250 mm above floor level; or

b) Type B poles (see Fig. 2) intended for

1) ward beds complying with the relevant requirements of SABS 521;
2) adjustable ward beds complying with CKS 635; and
3) high-low beds complying with CKS 447.

3.3 WELDED JOINTS. Welded joints shall be fusion-welded or braze-welded. Parts joined by welding shall be close fitting and in correct alignment, and the joints shall have mechanical properties and, when relevant, corrosion resistance of at least the same order as those of the parent metal. The welds shall be acceptable. Weld faces shall be smooth, clean and free from porosity, cavities, spatter and trapped slag, and shall merge smoothly into the surface of the parent metal without overlap or undue undercut. The weld metal, heat-affected zone and adjacent parent metal shall be free from cracks. Where welding is done from one side only, there shall be full penetration of the joint.

3.4 DESIGN AND DIMENSIONS. The design shall be such as to provide a triangular

handle suspended above a cot or bed to enable a patient lying on the bed to lift himself into a sitting position. The design and dimensions of the lifting poles and handles shall conform to those given in Fig. 1 and 2, as relevant, and those given in 3.5. Type A lifting poles shall be of stainless steel or of mild steel, as specified by the purchaser. Except where otherwise indicated, the dimensions shall be subject to a tolerance of ± 5 mm .

3.5 CONSTRUCTION

3.5.1 Type A Poles. Type A lifting poles shall be made of stainless steel tube having a nominal outside diameter of at least 40 mm and a nominal wall thickness of at least 2,60 mm, or of mild steel tube having a nominal outside diameter of at least 40 mm and a nominal wall thickness of at least 3,20 mm, as relevant. The tube shall be bent as shown in Fig. 1 and shall have closed ends. An acceptable suspension hook of 10 mm diameter stainless steel or mild steel rod (as relevant) shall be welded towards the end of the pole as shown in Fig. 1.

3.5.2 Type B Poles. Type B lifting poles shall be made of mild steel tube having a nominal size of 31,8 mm and a nominal wall thickness of at least 2,5 mm .

The tube shall be bent as shown in Fig. 2 and shall have closed ends. An acceptable suspension hook of 10 mm diameter mild steel rod shall be welded towards the end of the pole as shown in Fig. 2.

3.5.3 Clamps. For Type A poles, an acceptable screw-clamp of stainless steel, mild steel, or other acceptable metal shall be so fixed to the bottom end of the pole as to be able to clamp onto a 25 mm diameter transverse horizontal leg brace of a bed. A second screw-clamp shall be provided that will firmly hold the pole against the upper (32 mm diameter) horizontal rail of the head-end bow of a cot or bed. This clamp shall be free to slide on the pole (to permit height adjustment) but, to hold it at any chosen height, it shall be provided with a clamping screw with a wing nut, both so constructed and attached to the pole that the head of the patient cannot accidentally come into contact with them. The wing nut should not be capable of being unscrewed completely. Acceptable linings shall protect the bearing surfaces of the clamp to avoid damage to the finish of the bed and the pole.

3.5.4 Handle, Supporting Webbing and Ring

a) The handle shall be of an acceptable moulded plastics material and shall be triangular in shape (see Fig. 1 or 2).
b) The handle shall be suspended by webbing material fitted with an acceptable metal ring (on the end of the webbing opposite the handle) to engage the suspension hook fitted towards the end of the pole (see Fig. 1 or 2).
c) When the handle is suspended from the pole, the vertical distance between the horizontal top axis of the pole and the horizontal axis of the handle grip shall, by means of shortening or lengthening the webbing loops, be adjustable at least in the range 480 mm to 600 mm .

3.6 PERFORMANCE. When the pole is attached to an appropriate bed, the handle, webbing, ring, suspension hook, pole, fixing brackets, and clamps, when relevant, shall be capable of carrying a mass of 130 kg, suspended from the centre of the

handle, without permanent distortion or failure of any part.

3.7 FINISH

a) All surfaces shall be smooth, clean and free from defects.
b) Stainless steel surfaces shall have a medium directional satin finish that shall not be inferior to the finish on the relevant standard sample held by the South African Bureau of Standards[1].

All exposed edges shall be free from burrs, roughness and sharpness.

c) Mild steel surfaces shall have a smooth bright chromium-plated finish, or a smooth powder-coated finish, as specified by the purchaser. Chromium-plated finishes shall comply with all the relevant requirements for service condition 2 (moderate service condition) given in SABS 728. Powder-coated finishes shall have a thickness of at least 60 μm . The colour of powder-coated finish shall be as specified by the purchaser.

[1]Manufacturers may, on application to the South African Bureau of Standards, inspect the standard sample.

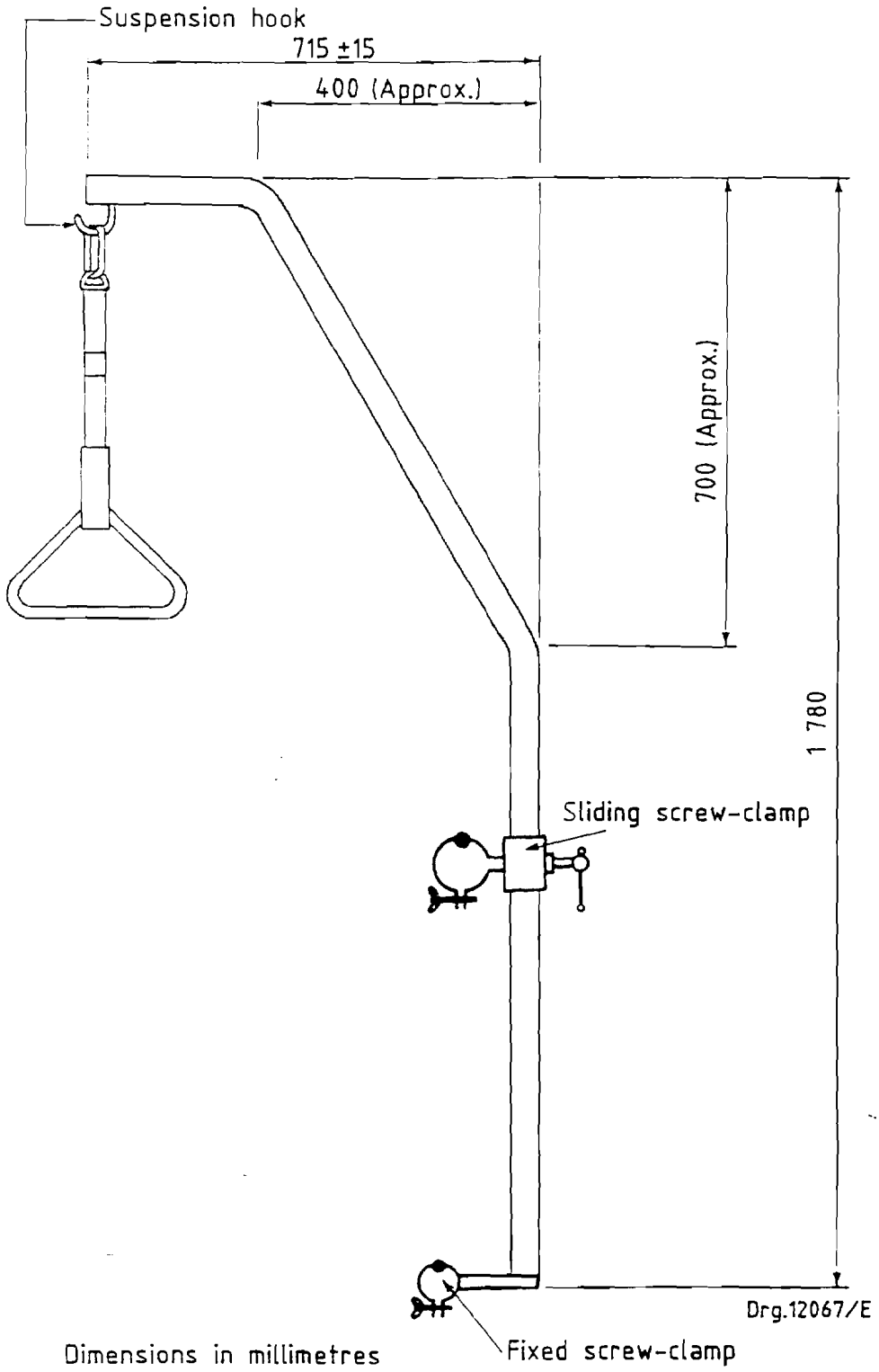

Fig. 1 - Patient Lifting Pole - Type A

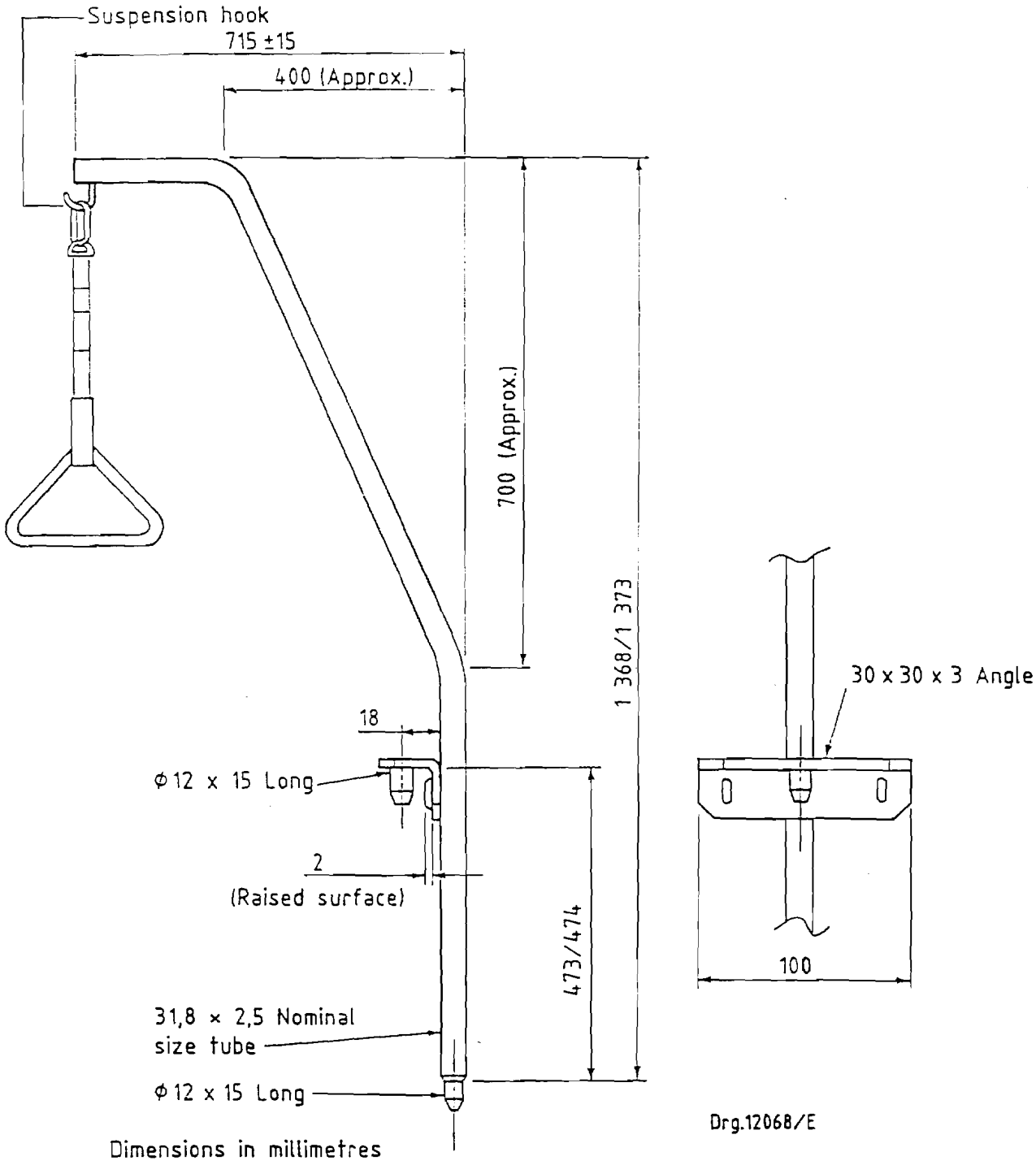

Fig. 2 - Patient Lifting Pole - Type B