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EAST AFRICAN STANDARD

Water taps (metallic bodies) — Specification

EAST AFRICAN COMMUNITY

First Edition 2010

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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Introduction

In the preparation of this East African Standard, the following source was consulted extensively:

SANS 226:2009, *Water taps (metallic bodies) — Specification*

Assistance derived from this source and others inadvertently not mentioned is hereby acknowledged.

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SANS 226:2009

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SOUTH AFRICAN NATIONAL STANDARD

Water taps (metallic bodies)

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Table of changes

Change No.	Date	Scope
Amdt 1	2004	Amended to include "stop taps" as a synonym for "stopcock", to add a definition for acceptable, to correct the requirement for the dynamic supply pressure (table 1), to add a note clarifying the use of the word "class", to change the requirements for metallic materials, to change the tolerance for diameters of washers and to change the marking requirement.
Amdt 2	2009	Amended to update referenced standards, and to modify the requirements for metallic materials.

Foreword

This South African standard was approved by National Committee SABS SC 138G, *Water and sanitation – Equipment and systems – Plumbing components*, in accordance with procedures of the SABS Standards Division, in compliance with annex 3 of the WTO/TBT agreement.

This document was published in December 2009.

This document supersedes SANS 226:2004 (edition 5.1).

A vertical line in the margin shows where the text has been technically modified by amendment No. 2.

Annex A forms an integral part of this standard. Annexes B, C and D are for information only.

Contents

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Water taps (metallic bodies)

1 Scope

This standard covers requirements for four classes of screw-down and non-screw-down metallic water taps (including stop taps) for the supply of water at temperatures not exceeding 75 °C. It also covers stopcocks of sizes up to and including 50 mm. It does not cover thermostatic mixer taps, single control mixer taps, metering taps, demand taps or taps of which the bodies are made entirely of a plastics material.

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 the SABS Standards Division.

BS 84, *Parallel screw threads of Whitworth form – Requirements.*

SANS 135/ISO 1456, *Metallic coatings – Electrodeposited coatings of nickel plus chromium and of copper plus nickel plus chromium.*

SANS 1067-1, *Copper-based fittings for copper tubes – Part 1: Compression fittings.*

SANS 1067-2, *Copper-based fittings for copper tubes – Part 2: Capillary solder fittings.*

SANS 1109-1/ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads – Part 1: Dimensions, tolerances and designation.*

SANS 1274, *Coatings applied by the powder-coating process.*

SANS 6509/ISO 6509, *Corrosion of metals and alloys – Determination of dezincification resistance of brass.*

~~SANS 10202 (SABS 0202), *Colour marking for the identification of wrought steels commonly used in South Africa*.~~ **Amdt 2**

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 **Amdt 1**

3.2
aerator
device fitted to the outlet of a tap and that mixes air with water to form a stream of aerated water

3.3
metallic tap
tap the body of which is made of metal

3.4
mixer tap
combination of a hot and a cold water tap with separate inlets and a common outlet

3.5
nominal size
nominal diameter of the supply pipe to which the tap is intended to be connected

3.6
non-screw-down tap
tap that is opened and closed by a mode of operation other than that used for screw-down taps

3.7
screw-down tap
tap that is opened and closed by rotating a spindle that so moves a sealing plate along the axis of the spindle that it can seal or unseal the seat port in the tap body

3.8
stopcock (stop tap)
tap that has an inlet and an outlet that are in line **Amdt 1**

4 Requirements

4.1 General

4.1.1 Type

A tap shall be of either a screw-down or a non-screw-down type.

4.1.2 Nominal size

A tap, other than a class 1 stopcock, shall have a nominal size of 15 mm, 20 mm or 25 mm. A class 1 stopcock shall have a nominal size of 15 mm, 20 mm, 25 mm, 32 mm, 40 mm or 50 mm.

4.1.3 Class

A tap shall be of class 1, class 2, class 3 or class 4, as required (see annex A).

4.1.4 Design

4.1.4.1 Class 1 tap

A model 1 tap (excluding a class 1 stopcock) shall be designed to operate on a static water supply pressure of up to 2 000 kPa. It shall also include such features as will ensure that at a dynamic supply pressure of 10 kPa $^{+1}_{0}$ kPa the flow rate from the tap shall be not less than that given in columns 3, 4 and 5 of table 1 for class 1 taps, subject to a tolerance of +10 %. For flow rates of class 1 stopcocks see 4.4.

4.1.4.2 Class 2 tap

A class 2 tap shall be designed to operate on a static water supply pressure of up to 2 000 kPa. It shall also include such features as will ensure that at a dynamic supply pressure of 50 kPa $^{+1}_{0}$ kPa the flow rate from the tap shall be not less than that given in columns 3, 4 and 5 of table 1 for class 2 taps subject to a tolerance of +10 %.

4.1.4.3 Class 3 tap

A class 3 tap shall be designed to operate on a static water pressure of up to 2 000 kPa. It shall also include such features as will ensure that at a dynamic supply pressure of 50 kPa $^{+1}_{0}$ kPa, the flow rate from the tap shall be as given in columns 3, 4 and 5 of table 1 for class 3 taps.

4.1.4.4 Class 4 tap

A class 4 tap shall comprise a 15 mm tap that includes such specific additional water conservation features as will ensure that, at any dynamic supply pressure up to 900 kPa, as shall be specified by the purchaser (see annex A), the flow rate from the tap shall be as given in column 3 of table 1 for class 4 taps and further detailed in 4.3(a). The water conservation feature shall comprise an easily replaceable and serviceable water control component attached to the tap. Any 15 mm tap of class 1, class 2 or class 3 may be adapted to suit this purpose.

Table 1 — Flow rates for taps

1	2	3	4	5
Class of tap	**Dynamic supply pressure** kPa	**Nominal size** mm		
		15	**20**	**25**
		Flow rate L/m		
1	10 $^{+1}_{0}$	9	15	23
2	50 $^{+5}_{0}$	9	18	25
3	50 $^{+5}_{0}$	7-11	20-30	N/A
4	< 900	7-9	N/A	N/A

Amdt 1

4.2 Flow rate for taps

When a tap is tested in accordance with 5.3 (in the case of a mixer tap, on one waterway only), the flow rate shall be as given in 4.1.4.1, 4.1.4.2 or 4.1.4.3, appropriate to the class of valve given.

4.3 Water conservation features on taps

For the purpose of water conservation in normal household application, it is recommended that either

a) all 15 mm taps intended for use on wash hand basins should include such specific additional features as will ensure that at any specific dynamic supply pressure up to 900 kPa, as specified

by the purchaser (see annex A), the flow rate from the tap could be adjusted to between 7 L/m and 9 L/m, or

b) the feature shall comprise an easily replaceable and serviceable (in situ) water control component.

4.4 Flow rate for stopcocks

When a class 1 stopcock is tested in accordance with 5.3, at a flow pressure of 10 kPa $^{+1}_{0}$ kPa, the flow rate shall be at least 12 L/min, 20 L/min, 30 L/min, 50 L/min, 80 L/min or 110 L/min for stopcocks of nominal size 15 mm, 20 mm, 25 mm, 32 mm, 40 mm and 50 mm, respectively. The flow rates of classes 2, 3 and 4 stopcocks shall comply with the appropriate flow rates given in table 1.

4.5 Materials

4.5.1 Metallic materials

Metallic materials that are intended to come into contact with water (excluding spouts that are removable and independent of the body of the tap) during operation shall be either **Amdt 1**

a) a copper alloy that, when tested for dezincification resistance in accordance with 5.4, shows no individual penetration reading that exceeds 250 µm, two samples being taken from each cast component (one from the thinnest part and the other from the thickest part) and one sample from every other component, or

b) a stainless steel of an acceptable grade. **Amdt 2**

4.5.2 Material for seals, washers and non-metallic washer plates

The material for seals, washers and non-metallic washer plates shall be such that, when the component is fitted to a tap and the tap is tested in accordance with 5.9 or 5.10, as relevant, no leakage occurs at seals, washers and non-metallic washer plates.

4.6 Dimensions

4.6.1 Overall dimensions

The dimensions of a tap shall conform to the appropriate values given in the relevant of figures 1 and 2.

4.6.2 Head-part fixing threads for screw-down taps

The head-part fixing threads shall comply with the requirements given in the relevant of (a) to (d), below:

a) **For 15 mm taps**. A 15 mm parallel thread that complies with the requirements of SANS 1109-1, or a parallel thread of major diameter 24,21 mm and of pitch 1,41 mm, that complies with the thread form given in BS 84 or a parallel thread of outside diameter 24 mm and of pitch 1,5 mm, that complies with the thread form given in BS 84.

b) **For 20 mm taps**. A 20 mm parallel thread that complies with the requirements of SANS 1109-1, or a parallel thread of major diameter 30,96 mm and of pitch 1,41 mm, that complies with the thread form given in BS 84, or a parallel thread of major diameter 24,21 mm and of pitch 1,41 mm, that complies with the thread form given in BS 84.

c) **For 25 mm taps**. A 25 mm parallel thread that complies with the requirements of SANS 1109-1 or a parallel thread of major diameter 40,48 mm and of pitch 1,41 mm, that complies with the thread form given in BS 84, or a parallel thread of major diameter 30,96 mm and of pitch 1,41 mm, that complies with the thread form given in BS 84.

d) **For stopcocks**. A parallel thread that complies with the requirements of SANS 1109-1 and of size equal to the nominal size of the stopcock or otherwise as specified in (a), (b) or (c) above for taps of sizes 15 mm, 20 mm and 25 mm, respectively.

4.6.3 Outside and inside diameters of flat washers for screw-down taps other than stopcocks

The outside diameters and, when applicable, the inside diameter of a washer shall conform to one of the following sets of values, appropriate to the nominal size of the tap. In the case of a diameter not conforming, the tap shall be such that, when the washer is replaced with a washer of diameter conforming to the appropriate value and the tap is then tested in accordance with 5.12, the tap will operate as in normal practice and without leakage:

Outside diameter, mm	**Inside diameter**, mm	
15 ± 1	$4{,}0\ ^{+1}_{-0{,}2}$	**Amdt 1**
19 ± 1	5,0 ± 0,2	
22 ± 1	5,0 ± 0,2	
25 ± 1	6,0 ± 0,2	
33 ± 1	6,0 ± 0,2	

4.6.4 Inlet spacing for two-hole mixer taps

For pillar-type two-hole mixer taps,

a) the distance between the axes of the inlets of the taps shall be 178 mm ± 2 mm, or

b) the inlets shall be furnished with off-set tailpieces of such dimensions as will accommodate the distance in (a).

4.7 Dimensions of components

4.7.1 Aerator

When so required (see annex A), the outlet of a tap of class 1 or 2 shall be fitted with an aerator that has a connecting thread of nominal pitch 1 mm.

4.7.2 End connections

The inlet and the outlet of the body of a tap shall, where applicable, have the overall dimensions given in figure 1 and shall be provided with one of the following types of connections, as required:

a) a boss that is threaded externally and machined internally so that it will accept the nut of a compression-type fitting that complies with the relevant requirements of SANS 1067-1;

b) a plain-ended boss that is machined internally to dimensions that comply with the relevant requirements of SANS 1067-2, appropriate to the nominal size of the tap;

c) a right-hand parallel thread that complies with the requirements of SANS 1109-1 and is of a size appropriate to the nominal size of the tap; or

d) for wall-mounted mixer taps, a union-type connection that will ensure the easy fitting or removal of the mixer tap.

4.7.3 Means for securing the body

Stop taps and stopcocks with end connections intended for joining to steel pipes shall have a spanner-grip that is integral with the body. Pillar-type taps and single-hole mixer taps shall be capable of being rigidly secured to the surface on which they are mounted by means of a back nut arrangement or a fixing plate and screws.

NOTE Mounting dimensions of taps on basins and baths are given in annex B.

4.7.4 Flange

The body of a pillar-type tap or mixer tap shall be provided with a flange (integral with or separate from the body).

4.7.5 Easy-clean cover

When a tap is fitted with any easy-clean cover, the easy-clean cover shall

a) have a wall thickness of at least 0,4 mm,

b) unless a combined handle is used, be threaded internally or be provided with an acceptable means for securing it to the head or to the edge of the head flange, and

c) be of length such that, when the tap is fully open and the easy-clean cover is loose, the clearance between the top of the head flange and the base of the easy-clean cover is at least 7 mm.

4.7.6 Engagement of spindle thread (class 1 screw-down taps and stopcocks)

The dimensions of the spindle thread and the dimensions of the mating thread in the head part shall be such that, with the tap washer removed and the tap fully closed, the threads engage by a minimum of three turns.

4.8 Spindle stop

Non-screw-down taps shall have a stop that will prevent movement of the spindle beyond either the fully closed or the fully open position.

4.9 Hot water application

Taps shall be designed to operate with water of temperature up to 75 °C. In the case of a screw-down tap marked for hot water use (see 6.1(b)), the washer plate, when fitted, shall be lifted positively from the seat when the tap is opened.

4.10 Finish

Metallic surfaces shall be coated or uncoated, as required (see annex A). If they are coated, the coating shall be

a) a nickel and chromium coating that complies with the requirements for service condition 2 of SANS 135, or

b) a powder coating that complies with the requirements for a type 4 coating of SANS 1274, or

c) any other coating, the dry finish of which shall have corrosion-resistant and wear-resistant properties at least equal to those of the coating described in (b).

4.11 Strength of construction

When a tap is tested in accordance with 5.5, it shall not leak or sweat, or show any sign of damage or permanent distortion. (During the test, leakage through the gland is permitted.)

4.12 Resistance of back nuts to torque

When a tap that has a back nut is tested in accordance with 5.6, no component shall show any sign of damage or permanent distortion at the end of the test.

4.13 Resistance of operating member and spindle to torque

When a fully assembled tap is tested in accordance with 5.7, no part of the tap (including, when relevant, the washer and washer plate) shall show any sign of damage.

4.14 Resistance of head-part thread and washer to torque

When a fully assembled tap is tested in accordance with 5.6, neither of the mating threads shall strip and the head part and joint washer shall show no signs of failure.

4.15 Resistance of spindles to bending

When a fully assembled tap is tested in accordance with 5.8, the spindle shall show no sign of damage.

4.16 Resistance to impact

When a tap is tested in accordance with 5.11, no component shall show any sign of damage.

4.17 Durability

When a tap is tested in accordance with 5.9 or 5.10, as relevant, it shall not leak or permit the passage of water.

5 Inspection, conditioning and methods of test

5.1 Inspection

Visually examine and measure each tap in the sample for compliance with all the relevant requirements of the standard, for which tests to assess compliance are not given in 5.3 to 5.12 (inclusive).

NOTE Information on the quality evaluation of metallic water taps is given in annex C.

5.2 Conditioning

Before carrying out any of the tests given in 5.3 to 5.12 (inclusive), heat the tap to a temperature of 80 °C for a period of 72 h ± 2 h and then allow it to cool for 24 h ± 1 h.

5.3 Test for flow rate of water

5.3.1 Apparatus

5.3.1.1 Pressure gauge, that can measure at least 300 kPa in increments of 10 kPa.

5.3.1.2 Water supply, that can deliver water at ambient temperature and at a static hydraulic pressure of at least 300 kPa.

5.3.1.3 Stop-watch, graduated in seconds.

5.3.1.4 Pressure take-off device (see figure 3).

5.3.1.5 Piping system, as shown in figure 3 and of size equal to the size of tap under test.

NOTE Recommendations for the construction of pressure take-off tees are given in annex D.

5.3.2 Procedure

5.3.2.1 Connect the tap (or mixer tap, if relevant) to the end of the water supply pipe.

5.3.2.2 Fully open the tap (in the case of mixer taps, the individual waterway under test), and slowly open the control valve until the pressure measuring device registers a pressure of 10 kPa or 50 kPa, as relevant (see table 1 and in the case of stopcocks see 4.4).

5.3.2.3 Determine the flow rate at this pressure and check for compliance with 4.2 or 4.4, as relevant.

5.4 Test for dezincification resistance

Subject copper alloy components that are intended to be in direct contact with water, to the test given in SANS 6509 and check for compliance with the requirements of 4.5.1(a).

5.5 Test for strength of construction

5.5.1 Apparatus

5.5.1.1 Pressure gauge, that can measure at least 3 000 kPa in increments of 20 kPa.

5.5.1.2 Water supply system, that can deliver water at ambient temperature and at a static hydraulic pressure of at least 3 000 kPa.

5.5.1.3 Stop-watch, graduated in seconds.

5.5.2 Procedure

5.5.2.1 Connect the tap (when relevant, with the aerator removed) to the water supply.

5.5.2.2 Fit a suitable plug in the tap outlet (in the case of a mixer tap fitted with a swivel outlet, after removing the swivel).

5.5.2.3 Fully open the tap and fill it with water, ensuring that no air is entrapped in the body.

5.5.2.4 Increase the water pressure to 3 000 kPa ± 50 kPa and maintain this pressure for 30 s ± 10 s.

5.5.2.5 While the tap is under pressure, visually examine it for compliance with 4.11.

5.6 Test for resistance of back nuts and head parts to torque

5.6.1 Apparatus

5.6.1.1 Rigid fixture, to which the tap under test can be secured as in normal service.

5.6.1.2 Rigidly mounted clamp (or similar device), by means of which any movement of the body of a tap secured to the fixture can be prevented.

5.6.1.3 Torque wrench, of appropriate capacity and calibration.

5.6.2 Procedure

5.6.2.1 Securely clamp the body of the tap under test to the fixture and mounted clamp.

5.6.2.2 After ensuring that the back nut, when relevant, is screwed tight, apply a torque of 25 N·m for 60 s ± 5 s to the back nut and then visually examine the tap for compliance with 4.12. In the case of two-hole and three-hole mixer taps, test in a similar manner each tap in turn.

5.6.2.3 In all cases, apply a torque of at least 50 N·m to the head part and examine the tap for compliance with 4.14.

5.7 Test for resistance of operating member and spindle to torque

5.7.1 Apparatus

As in 5.6.1.

5.7.2 Procedure

5.7.2.1 Securely clamp the body of the tap under test to the fixture.

5.7.2.2 Actuate the operating member of the tap, by hand, until the tap is fully closed or, when relevant, the operating member has reached the fully closed position.

5.7.2.3 Apply a torque of 10 N·m to the operating member, for 60 s ± 5 s, and then release the torque. Repeat the procedure for an additional three times.

5.7.2.4 Visually examine the operating member and washer for compliance with 4.13.

5.7.2.5 Remove the operating member, when relevant, and apply a torque of 15 N·m to the spindle. Maintain this torque for 60 s ± 5 s, then release the torque.

5.7.2.6 Visually examine the spindle, head part and tap seat for compliance with 4.13.

5.8 Test for resistance of spindles to bending

5.8.1 Apparatus

5.8.1.1 Device, by which the specified bending-moment can be applied to the spindle.

5.8.1.2 Fixture and clamp.

5.8.2 Procedure

5.8.2.1 Securely clamp the body of the tap under test to the fixture.

5.8.2.2 Actuate the operating member of the tap, by hand, until the tap is fully closed.

5.8.2.3 Remove the operating member and apply a bending-moment of 15 N·m to the spindle for 60 s ± 5 s.

5.8.2.4 Release the bending-moment and visually examine the spindle for compliance with 4.15.

5.9 Test for durability of screw-down taps

5.9.1 Apparatus

5.9.1.1 Device, that can apply a specified torque on the operating member in cycles, at a rate of (10 ± 1) cycles per minute. Each cycle consists of the exertion of the specified torque (with the tap in a fully closed position), the rotation of the operating member through one revolution to lift the washer, and the lowering of the washer onto the seat.

5.9.1.2 Rigid fixture, to which the tap under test can be secured as in normal service.

5.9.1.3 Pressure gauge.

5.9.1.4 Cold water supply, at an hydraulic pressure of approximately 2 000 kPa and at a temperature of 20 °C ± 5 °C.

5.9.1.5 Hot water supply, at an hydraulic pressure of approximately 300 kPa and at a temperature of 65 °C ± 5 °C.

5.9.1.6 Stop-watch, graduated in seconds.

5.9.2 Procedure

5.9.2.1 Securely clamp the body of the tap to the fixture, connect the tap inlet to one of the water supplies and, in the case of a tap fitted with a rising spindle, slacken the gland, and adjust the water supply to a pressure of 50 kPa ± 5 kPa for both cold and hot water supplies.

5.9.2.2 Using the hot and cold water supplies alternately for periods of 30 min each, subject the tap in turn to

a) 3 000 cycles, exerting a torque of 4 N·m on the operating member, and

b) 100 000 cycles, exerting a torque of 1,5 N·m on the operating member.

5.9.2.3 With the tap in the fully closed position and a torque of 4 N·m applied to the operating member, subject the tap for 30 s to a cold water pressure of 2 000 kPa ± 50 kPa and, if necessary, adjust any adjustable seals. While the tap is under this pressure, examine it for compliance with 4.17.

5.9.2.4 Apply an increasing torque to the operating member until a component fails and again check for compliance with 4.17.

5.10 Test for durability of taps other than screw-down taps

5.10.1 Apparatus

5.10.1.1 Device, that will effectively reproduce the normal opening and closing operation of the tap and that is capable of applying the appropriate torque to the operating member when the tap is closed. The device shall open and close the tap at a rate of (10 ± 1) cycles per minute.

5.10.1.2 Rigid fixture, as in 5.9.1.2.

5.10.1.3 Pressure gauge.

5.10.1.4 Cold water supply, at an hydraulic pressure of approximately 2 000 kPa and at a temperature of 20 °C ± 5 °C.

5.10.1.5 Hot water supply, at a temperature of 65 °C ± 5 °C.

5.10.2 Procedure

5.10.2.1 Securely clamp the body of the tap to the fixture, connect the tap inlet to one of the water supplies and adjust the water pressure to 50 kPa ± 5 kPa.

5.10.2.2 Using the hot and cold water supplies alternately for periods of 30 min each, subject the tap in turn to

a) 3 000 cycles, exerting a torque of 4 N·m on the operating member, and

b) 100 000 cycles, exerting a torque of 1,5 N·m on the operating member.

5.10.2.3 With the tap in the fully closed position and a torque of 4 N·m applied to the operating member, subject the tap for 30 s to an hydraulic test pressure of 2 000 kPa ± 50 kPa and, if necessary, adjust any adjustable seals. While the tap is under this pressure, examine it for compliance with 4.17.

5.10.2.4 Apply an increasing torque to the operating member until a component fails and again check for compliance with 4.17.

5.11 Test for impact resistance

5.11.1 Apparatus

5.11.1.1 Fixture, rigid fixture to which the tap under test can be secured as in normal service.

5.11.1.2 Mass piece, solid steel ball of mass 0,5 kg ± 0,05 kg.

5.11.2 Procedure

5.11.2.1 Using normal plumbing procedures or, when relevant, the manufacturer's special procedures, secure the tap under test to the fixture.

5.11.2.2 So drop the steel ball freely from a height of 1,0 m ± 0,01 m that impact is made on a point 12 mm from the end of the outlet. Submit the tap to a total of three such impacts, then dismantle it and visually examine its components for compliance with 4.16.

5.12 Test for interchangeability of washers

Use the procedures given in 5.9.2 or 5.10.2, as appropriate, but omit 5.9.2.2(a) or 5.10.2.2(b), as relevant, and 5.9.2.4 or 5.10.2.4, as relevant. In 5.9.2.2(b) or 5.10.2.2(b), as relevant, carry out only 50 000 cycles and then check for compliance with 4.6.3.

6 Marking

6.1 Taps shall be legibly and indelibly marked as follows:

a) each tap shall bear the manufacturer's name, trade name or trade mark (or any combination of these), indented or embossed on at least one component of the tap;

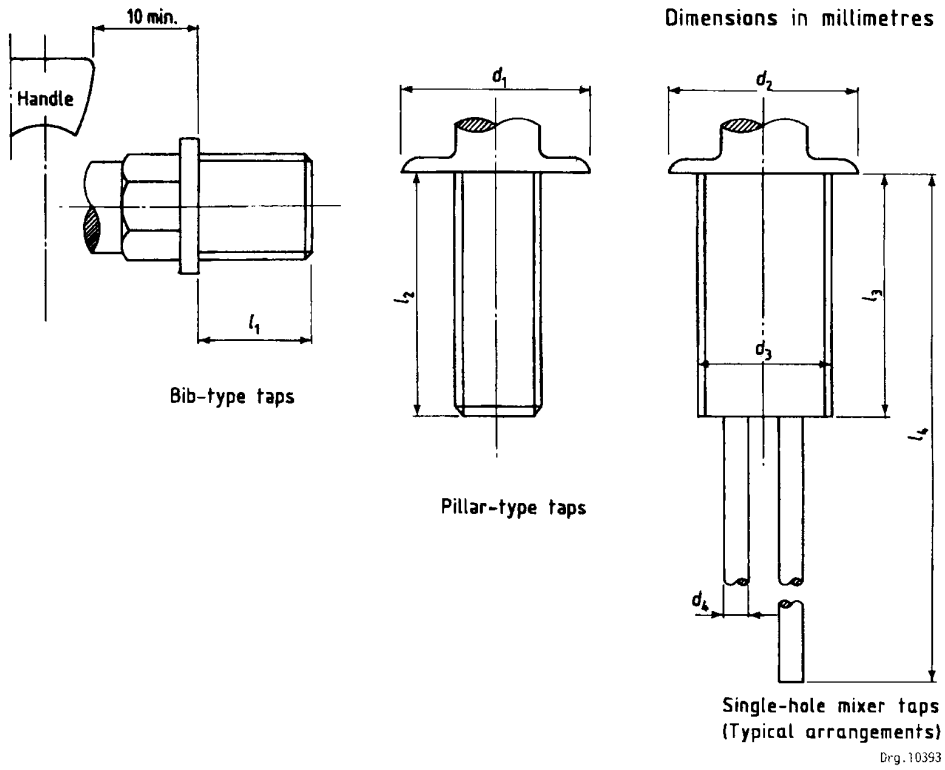
b) a tap shall bear a symbol or a colour to indicate whether it is intended for use with hot or cold water. When colours are used, red shall be used to denote a hot water tap and blue to denote a cold water tap;

c) a tap shall bear the class of the tap either on an acceptable self-adhesive label or indented or embossed on the tap; and

NOTE The marking of the class should be 226/1, 226/2 etc., as applicable. **Amdt 1**

d) an arrow that indicates the direction of flow and the letters "DR" (to indicate dezincification resistance) shall be indented or embossed on the body of a stop tap or stopcock. **Amdt 1**

~~e) the letters "DR" (to indicate dezincification resistance).~~ **Amdt 1**



1	2	3	4	5
Reference	**Designation**	**Nominal size of tap**		
		15	**20**	**25**
l_1	Thread length, min.	12	15	20
l_2	Thread length, min.	40	40	–
l_3	Thread length, min.	40 - all mixer taps		
l_4	Overall length, min.	350	–	–
d_1	Diameter of flange, min.	42	42	–
d_2	Diameter of flange, min.	42 - all mixer taps		
d_3	External diameter, max.	33,5	–	–
d_4	External diameter, min.	10	–	–

Figure 1 — Dimensions of end connections

Dimensions in millimetres

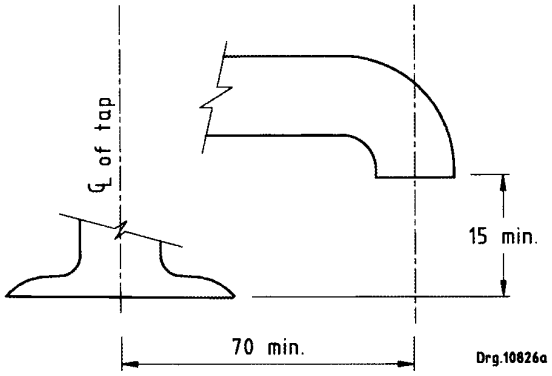
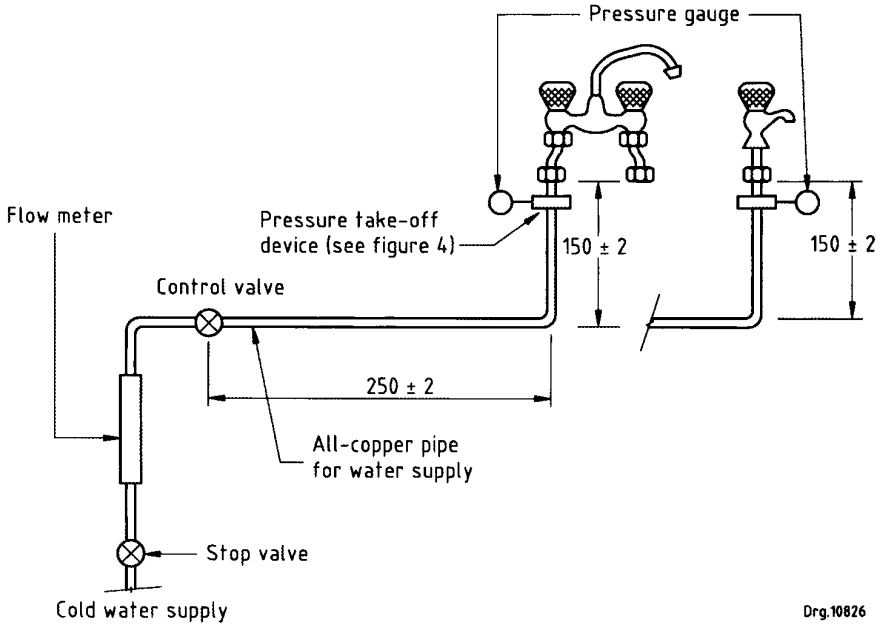


Figure 2 — Spout arrangement for outlets

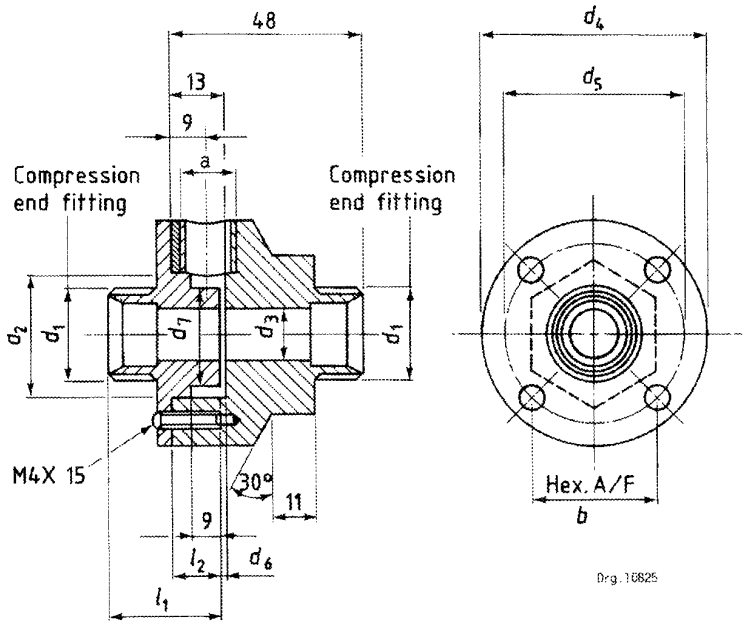
Dimensions in millimetres



NOTE Drawing is diagrammatic only.

Figure 3 — Flow rate test apparatus

Dimensions in millimetres



[a] 8 mm pipe thread

1	2	3	4	5	6	7	8	9	10	11
Size	d_1	d_2	d_3	b	d_4	l_1	l_2	d_5	d_6	d_7
15	[b]	310	127	330	550	270	125	430	5	210
20	[b]	410	190	330	650	290	123	530	7	230
25	[b]	510	260	330	750	310	125	630	9	250
[b] Dimension appropriate to size of tap tested.										

Figure 4 — Dimensions of pressure take-off devices

Annex A
(normative)

Notes to purchasers

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

a) the class of the tap (see 4.1.3);

b) the dynamic pressure (see 4.1.4.4 and 4.3(a));

c) whether an aerator is required (see 4.7.1); and

d) the finish (see 4.10).

Annex B
(informative)

Mounting dimensions of taps on basins and baths
(see SANS 497)

B.1 Dimensions of tap holes in basins and baths

The sizes of tap holes should be as follows:

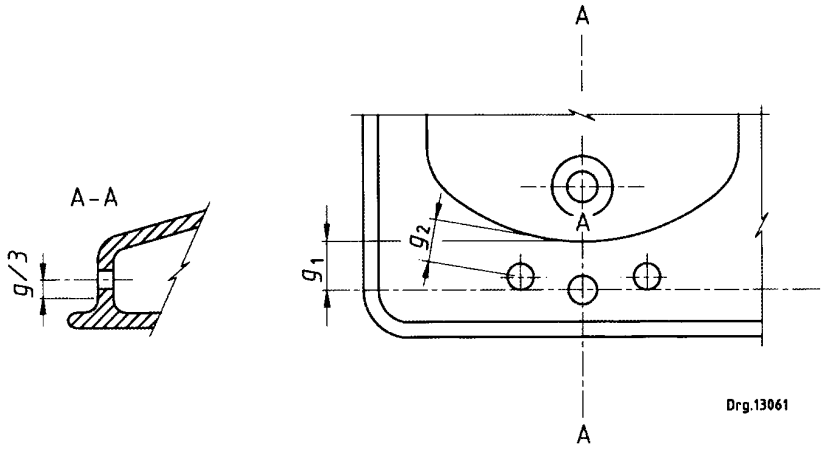
a) for 15 mm and 20 mm pillar taps: 30 mm ± 2 mm; and

b) for mixer taps: 36 mm ± 2 mm.

B.2 Position of tap holes in basins

The holes should be positioned as shown in figure B.1.

Dimensions in millimetres



1	2	3
Dimensions		
g_1	g_2	g_3
≤ 80	≤ 65	≥ 32

Figure B.1 — Details of tap holes in wash-hand basins

Annex C
(informative)

Quality evaluation of metallic water taps

When a purchaser requires ongoing verification of the quality of metallic water taps, 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 provisions of an integrated quality system.

Annex D
(informative)

Recommendations for the construction of pressure take-off tees

Specifications on the design and construction of pressure take-off tees are given in ISO 5167-1.

The main principles are given below.

Individual pressure orifice

The axis of the pressure orifices should intersect the axis of the piping (or of the casing) and be perpendicular to it.

The mouth of the hole should be circular. The edges should be flush with the wall of the piping (or the casing) and as sharp as possible. Slight round-off is permitted (radius $\leq$ 1/10th diameter of the pressure orifice).

The diameter of the pressure orifice should be less than 0,1 D (D: internal diameter of the tube or casing).

The pressure orifices should be even in number. There should be at least four of them. The angles formed by the arcs of the pressure orifices should be approximately equal.

The area of the free cross section of the annular chamber of the pressure orifices should be equal to or greater than half the total surface of the pressure orifice opening linking the chamber to the piping.

Annular slit

The thickness f of the annular slit should be equal to or greater than twice the width i of the slit.

The area of the free cross section of the annular chamber should be equal to or greater than half the total surface of the annular slit linking the chamber to the piping.

All surfaces coming into contact with the fluid measured should be clean and well finished.

The width i of the annular slit should be nominally 1 mm.

Bibliography

~~BS 4504-3-1, *Circular flanges for pipes, valves and fittings (PN designated) – Steel, cast iron and copper alloy flanges – Specification for steel flanges.*~~ **Amdt 2**

EN 1092-1, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 1: Steel flanges.* **Amdt 2**

ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full – Part 1: General principles and requirements.*

SANS 497, *Glazed ceramic sanitaryware.*

SANS 9001/ISO 9001, *Quality management systems – Requirements.*

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