

Sanitary tapware — Mechanical mixers (PN 10) — General technical specifications

The European Standard EN 817 : 1997 has the status of a
British Standard

ICS 91.140.70

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Summary of pages

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English version

Sanitary tapware —
Mechanical mixers (PN 10) —
General technical specifications

Robinetterie sanitaire —
Mitigeurs mécaniques (PN 10) —
Spécifications techniques générales

Sanitärarmaturen —
Mechanisch einstellbare Mischer (PN 10) —
Allgemeine technische Spezifikation

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Europäisches Komitee für Normung

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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 164, Water supply, the Secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 1998, and conflicting national standards shall be withdrawn at the latest by February 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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0 Introduction

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this standard:

- 1) this standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;
- 2) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

1 Scope

This European Standard specifies:

- the dimensional, leaktightness, mechanical and hydraulic performance, mechanical endurance and acoustic characteristics with which mechanical mixing valves shall comply;
- the procedures for testing these characteristics.

It is applicable:

- to mechanical mixing valves, intended for use on sanitary appliances in washrooms (toilets, bathrooms, etc.) and in kitchens;
- to PN 10 mechanical mixing valves used under the following pressure and temperature conditions.

Table 1. Conditions for the use of mechanical mixing valves		
	Limits of use	Recommended limits for correct operation
Dynamic pressure	0,05 MPa (0,5 bar) minimum	$0,1 \text{ MPa} \leq P \leq 0,5 \text{ MPa}$ ($1 \text{ bar} \leq P \leq 5 \text{ bar}$)
Static pressure	1 MPa (10 bar) maximum	
Temperature	$\leq 90 \text{ }^{\circ}\text{C}$	$\leq 65 \text{ }^{\circ}\text{C}$

NOTE. Mechanical mixing valves for use at pressures lower than those in table 1 are covered by prEN 1286.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 31	<i>Pedestal wash basins — Connecting dimensions</i>
EN 32	<i>Wall hung wash basins — Connecting dimensions</i>
EN 35	<i>Pedestal bidets over rim supply only — Connecting dimensions</i>
EN 36	<i>Wall hung bidets over rim supply only — Connecting dimensions</i>
EN 111	<i>Wall hung rinse basins — Connecting dimensions</i>
EN 232	<i>Baths — Connecting dimensions</i>
EN 246	<i>Sanitary tapware — General specifications for flow rate regulators</i>
EN 248	<i>Sanitary tapware — General technical specifications for electrodeposited nickel chrome coatings</i>
prEN 695	<i>Kitchen sinks — Connecting dimensions</i>
prEN 1717	<i>Protection against pollution of potable water in drinking water installations and general requirements of devices to prevent pollution by backflow</i>
EN ISO 3822-1	<i>Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 1 : Method of measurement</i> (ISO/DIS 3822-1 : 1995)

EN ISO 3822-2 *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 2 : Mounting and operating conditions for draw-off taps and mixing valves*
(ISO 3822-2 : 1995)

EN ISO 3822-4 : 1997 *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 4 : Mounting and operating conditions for special appliances*

ISO 228-1 : 1994 *Pipe threads where pressure-tight joints are not made on the threads — Part 1 : Dimensions tolerances and designation*

ISO 5167-1 : 1991 *Measurement of fluid flow by means of pressure differential devices — Part 1 : Orifice plates, nozzles and Venturi tubes inserted in circular cross-section conduits running full*

3
Definition

For the purposes of this standard, the following definition applies:

mechanical mixing valve

Valve which by means of a control device, mixes hot and cold water between the ‘all cold water’ position and the ‘all hot water’ position and adjusts the flow rate of the mixture obtained between the ‘no flow’ and ‘maximum flow’ positions, either using the same control device or another separate control device.

4
Classification

There are two types of mechanical mixing valve.

4.1 Single control mixing valve

Mechanical mixing valve with a single control device for adjusting flow rate and temperature.

4.2 Other mixing valves

Mechanical mixing valves with separate control devices for adjusting flow rate and temperature.

5
Designation

A mechanical mixing valve is designated by:

- type (see clause 4), with or without diverter (see table 2);
- type of body (see table 2);
- type of nozzle (see table 2);
- the sanitary appliance on which it is to be used (see table 2);
- the method of mounting (see table 2);
- its acoustic group and flow rate class(es) (see table 14);
- reference to this standard (EN 817).

In the case of a mechanical bath/shower mixing valve, the flow rate shall be designated by both flow rate classes. The first for the bath outlet, the second for the shower outlet.

Example of designation, ‘Single control mechanical mixing valve, with diverter, visible body and fixed nozzle outlet, for bath/shower, for horizontal mounting, Group I (class C.B) EN 817’.

Table 2. Designation	
Diverter	With or without diverter
Type of body	Two-hole, single hole, visible or concealed
Type of nozzle	Fixed or moveable nozzle outlet, no nozzle outlet
Intended use	Basin, bidet, sink, bath or shower
Mounting method	Horizontal or vertical surfaces

6 Marking — Identification

6.1 Marking

Mechanical mixing valves complying with this standard shall be marked permanently and legibly on the body with:

- the mark or name of the manufacturer, the acoustic group and flow rate class.

In the case of a mechanical bath/shower mixing valve, both flow rate classes shall be marked. The first for the bath outlet, the second for the shower outlet.

6.2 Identification

The direction of movement of the control device for water temperature adjustment of mechanical mixing valves shall be identified:

- for cold water, by the colour blue;
- for hot water, by the colour red.

The identification of cold water shall be on the right and the hot water on the left.

7 Materials

7.1 Chemical and hygienic characteristics

All materials in contact with water intended for human consumption shall present no health risk up to a temperature of 90 °C. They shall not cause any deterioration in water intended for human consumption, with regard to food quality, appearance, odour or taste.

Within the recommended limit given in clause 1 for correct operation, the materials shall not be subject to any deterioration which might compromise the operation of the mechanical mixing valve. Pressurized parts shall withstand the limits of use set in table 1. Materials with inadequate corrosion resistance shall be given additional protection.

7.2 Exposed surface condition and quality of coating

Visible chromium plated surface and Ni-Cr coatings shall comply with the requirements of EN 248.

8 Dimensional characteristics

8.1 General remarks concerning the drawing

The design and construction of components without defined dimensions permits various design solutions to be adopted by the manufacturer.

Special cases are covered in 8.5.

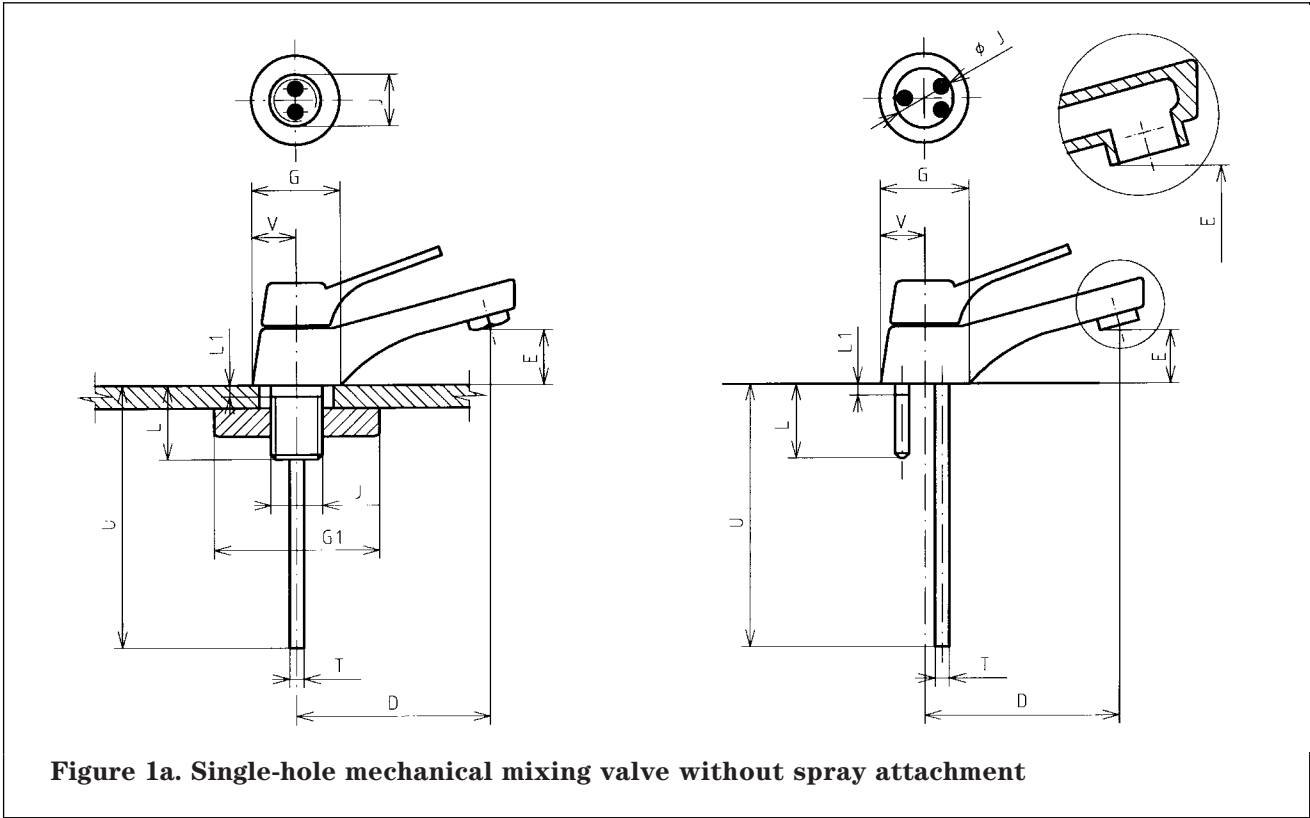
8.2 Mechanical mixing valves mounted on horizontal surfaces

The standardized dimensions of mechanical mixers:

- firstly, guarantee their mounting and interchangeability on sanitary appliances complying with the standards EN 31, EN 32, EN 35, EN 36, EN 111, EN 232, EN 695;
- secondly, give the various options for connection with the water supply.

8.2.1 *Single-hole mixer — visible body* (see table 3).

8.2.1.1 *Without spray attachment* (see figure 1a).



8.2.1.2 With spray attachment (see figures 1b and 1c)

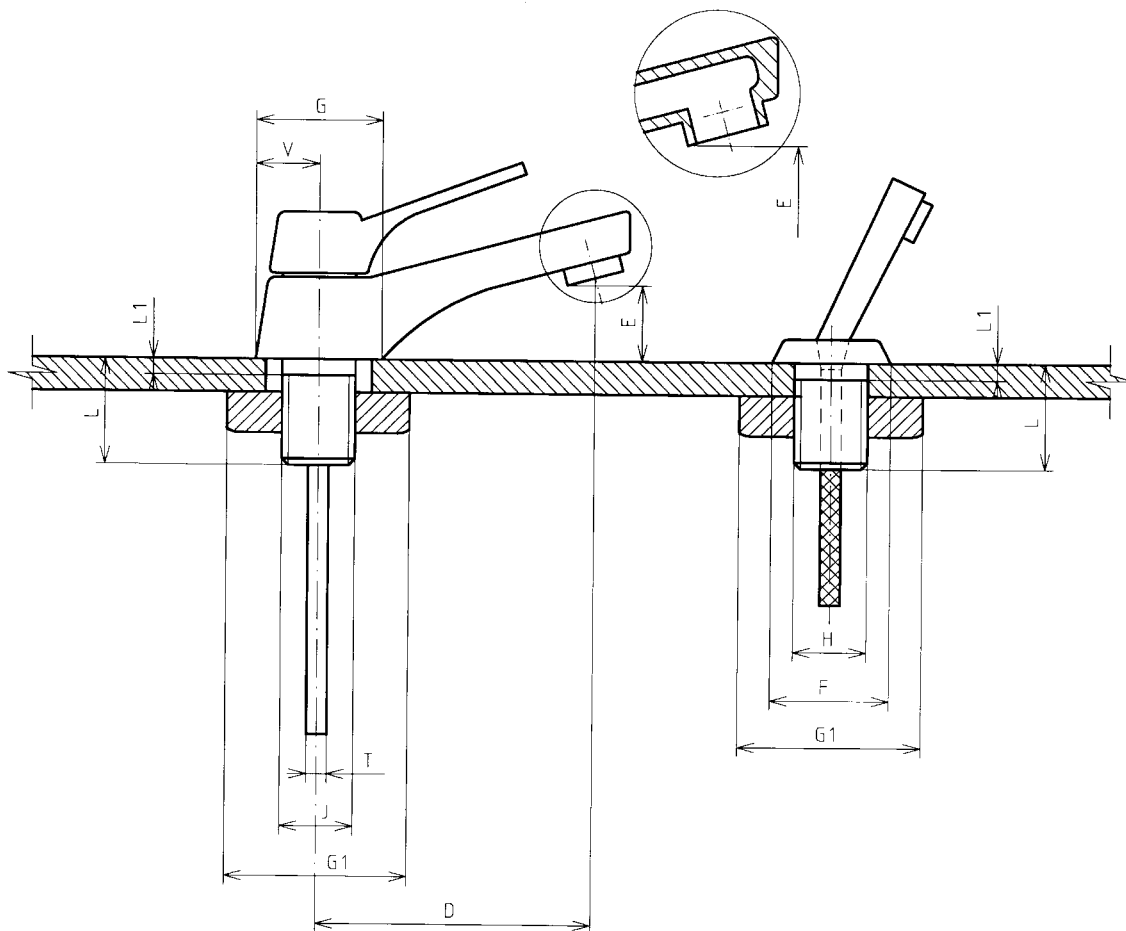


Figure 1b. Remote spray attachment

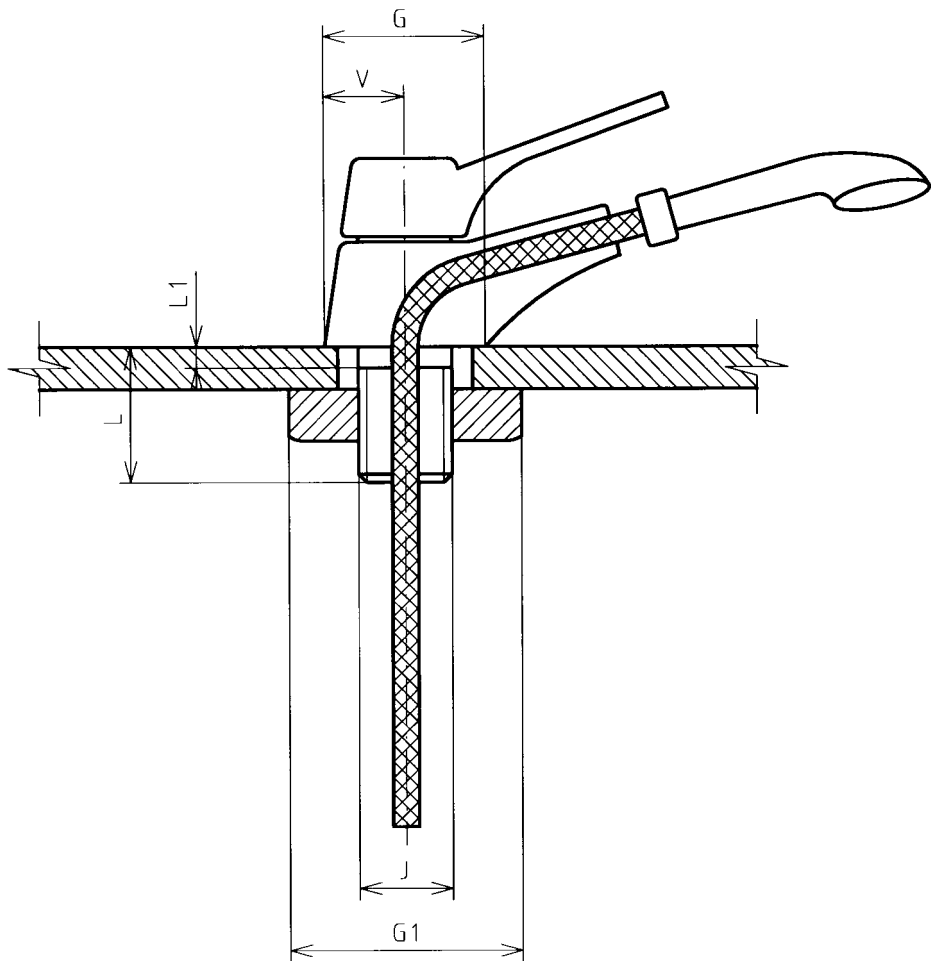
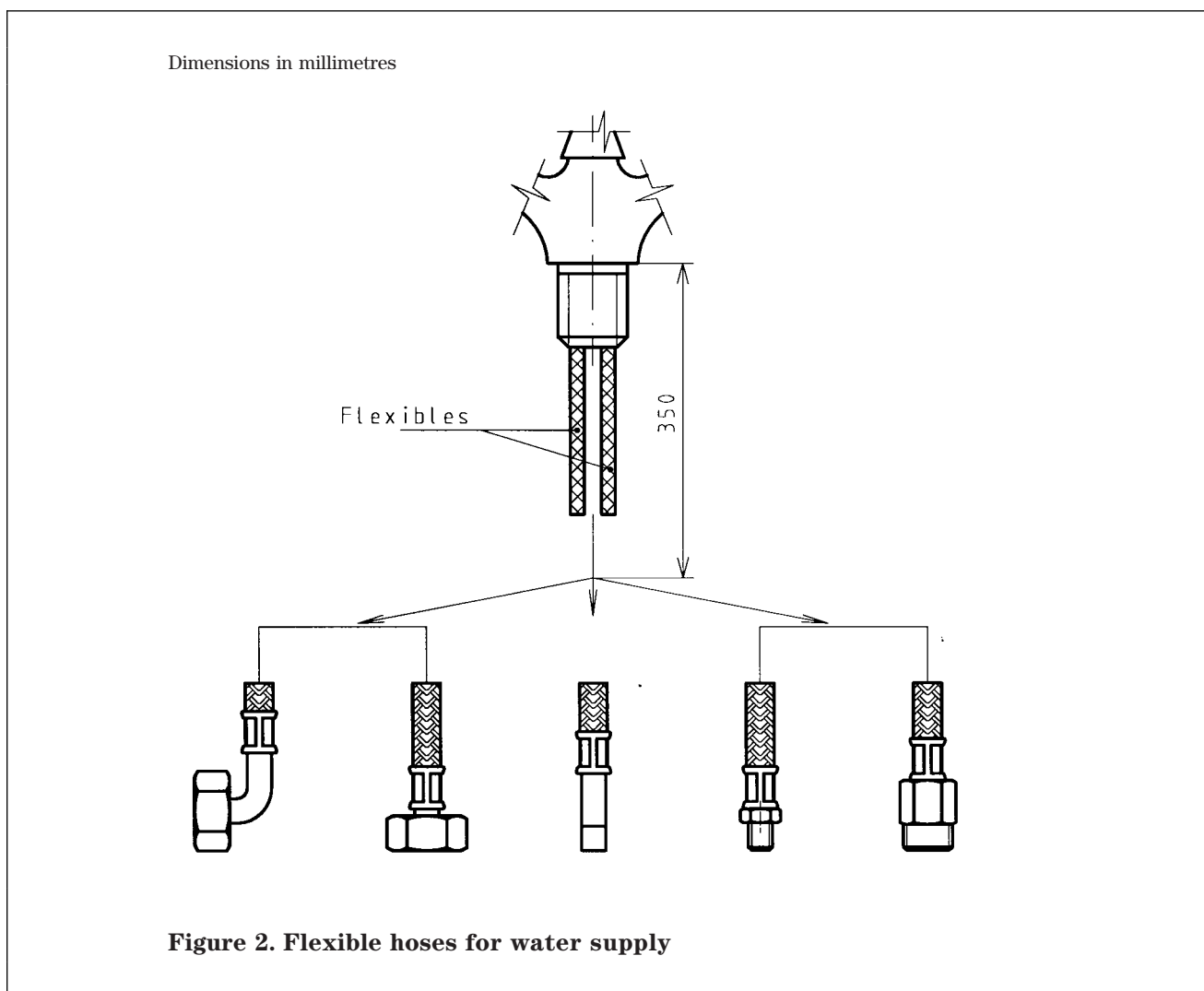


Figure 1c. Integral spray attachment

8.2.1.3 Supply hoses



NOTE 1. Supply hoses can be used with the mixing valves shown in figures 1a, 1b, 1c, 5 and 6. Other methods of connection to the supply are permissible.

NOTE 2. Supply hoses should comply with the requirements of draft standard, *Flexible hoses for water supply*, (WI : 00164121).

Table 3. Single-hole visible body mixing valve with or without spray attachment (See figures 1a, 1b, 1c) Mechanical mixing valves with remote outlet (see figures 5 and 6)		
Dimensions in millimetres		
Dimensions	Measures	Comments
<i>D</i>	100 min.	Dimension from the centre of outlet, as supplied, i.e., orifice with or without flow rate regulator.
<i>E</i>	25 min.	Dimension from lowest point of the outlet orifice to the mounting surface
<i>F</i>	42 min. for wash-basins/bidets/sinks/baths	Smallest dimension of the remote spray attachment base
<i>G</i>	45 min.	Smallest dimension of the mixing valve base
<i>G</i> ₁	External diameter 50 max.	Clamping washer
<i>H</i>	29 max.	Shank diameter of remote spray attachment
<i>J</i>	33,5 max.	The two inlet pipes and retention stud shall be contained in a circle of diameter <i>J</i>
<i>L</i> and <i>L</i> ₁	Dimensions which allow mixing valves to be fitted on to supports of thickness between 1 mm and 18 mm	
<i>T</i>	Copper tube with an external diameter of 10 Hose in accordance with 8.2.1.3	Plain – or G 3/8 male or female thread – or G 1/2 male or female thread Plain end with an external diameter of 10 – or with G 3/8 male or female thread – or G 1/2 male or female thread
<i>U</i>	350 min.	
<i>V</i> max.	35 max. for baths 32 max. for wash-basins/bidets/sinks	Projection of mixing valve base to rear, measured from axis of diameter <i>J</i>

NOTE. Dimensions *J*, *T* and *U* are not specified for baths and are left to the discretion of the manufacturer.

8.2.2 Two-hole mechanical mixing valve with visible body mounted on horizontal surface
(see table 4 and figure 3)

