

## **Emergency safety showers — Part 1: Plumbed-in body showers for laboratories**

*Sicherheitsnotduschen — Teil 1: Körperduschen mit Wasseranschluss für Laboratorien*

*Douches de sécurité — Partie 1 : Douches pour le corps raccordées au réseau d'eau pour laboratoire*

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## Foreword

This document (prEN 15154-1:2006) has been prepared by Technical Committee CEN/TC 332 "Laboratory equipment", the secretariat of which is held by DIN.

This document is currently submitted to the Formal Vote.

prEN 15154 consists of the following parts, under the general title *Emergency safety showers*

- Part 1: Plumbed-in body showers for laboratories
- Part 2: Plumbed-in eye wash units
- Part 3: Portable body showers (in preparation)
- Part 4: Portable eye wash units (in preparation)
- Part 5: Plumbed-in body showers for production facilities (in planning)

## Introduction

Plumbed-in body showers are designed and intended to be installed in close range of persons working in a potentially hazardous area. The main purpose of these devices is to immediately deliver flushing fluid in sufficient volume to extinguish flames and/or to flush the body following exposure to injurious substances or heat. With this accomplished the injured person can proceed to medical care.

## 1 Scope

This document is a product specification, giving performance requirements for emergency safety body showers connected to the water supply. It is applicable to plumbed-in body showers only, located in laboratory facilities. It is not applicable to emergency safety showers used on industrial sites or in other such areas.

Requirements are given in respect of the performance, installation, adjustment and marking of the showers as well as installation, operation and maintenance instructions to be given by the manufacturer.

NOTE Attention is drawn to national regulations which may apply in respect of the installation and use of emergency safety showers.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3864-1, Graphical symbols — Safety colours and safety signs — Part 1: Safety signs in work places and public areas

EN 420, Protective gloves – General requirements and test methods

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

**3.1 emergency safety shower**  
device specially designed and intended to deliver flushing fluid to extinguish flames and to wash away contaminants or to dilute them sufficiently to render them harmless

**3.2 plumbed-in body shower**  
emergency safety shower that is permanently connected to a continuous water supply and designed to deliver water sufficient to flush the whole body

## 4 Performance

### 4.1 Flow rate of water

The water supplied by the body shower shall be of constant flow rate in accordance with national regulations at a flow pressure to be specified by the manufacturer. The flow pressure shall be specified and measured where the shower is connected to the water system. The body shower shall be capable of delivering this supply for a minimum of 15 minutes.

NOTE When no national or local regulations apply, a constant flow rate of min. 60 l/min is suitable.

### 4.2 Water distribution

The water distribution of the emergency body shower shall be measured by the following type test procedure.

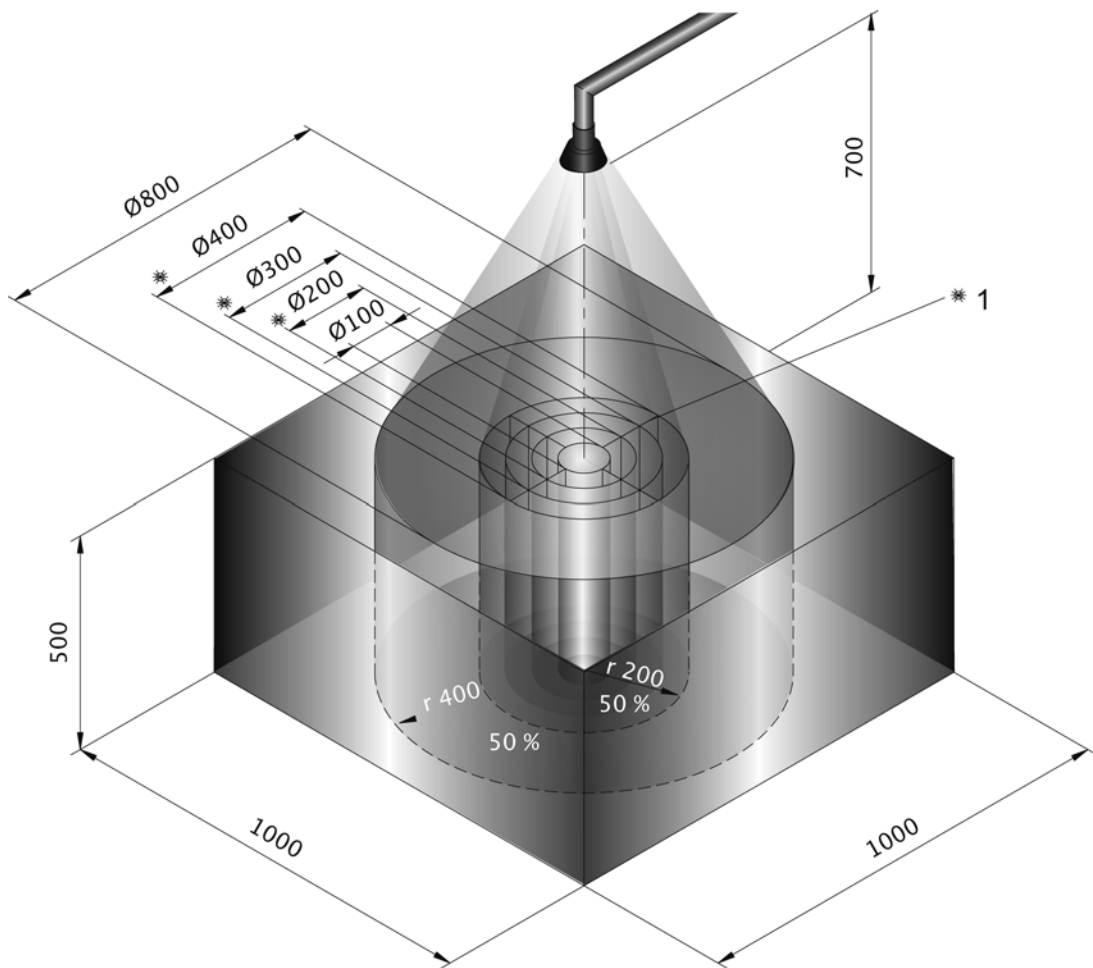
As shown in Figure 1, at a distance 700 mm below the shower head, (50 ± 10) % of the volume of water delivered shall fall in a circle with a radius of 200 mm; the water level in the individual compartments in this circle shall not deviate by more than 30 % from the mean value.

At this measuring level, the area reached by minimum 95 % of the water shall be limited to a circle with a radius of 400 mm.

The velocity of the water spray shall be low enough to be non-injurious to the user.

NOTE A hand held shower with flexible hose mounted on the body shower can be incorporated.

Dimensions in millimetre



#### Key

- 1 Cylinder shall be divided into 4 compartments.

Figure 1 — Type testing of water distribution

### 4.3 Water quality

Potable water or water of a similar quality complying with European or national standards is required for body showers.

Materials used in the construction of the shower shall not effect the water quality or contaminate the water supply.

#### 4.4 Water temperature

Information on water temperature is given in Annex A (informative).

### 5 Installation requirements

#### 5.1 Installation height

The shower head shall be designed to be installed so that its lower edge is  $(2200 \pm 100)$  mm above the level on which the user stands.

#### 5.2 Free space

The free space between the centre line of the shower head and the nearest obstruction (wall, vertical supply tube or similar) shall be a circle with a minimum radius of 400 mm.

Only the valve control element and/or the eyewash station and/or the hand held shower on a combination shower shall project into this space by a maximum of 200 mm. Other parts or components shall not project into this space.

### 6 Valve

For manual operation, the valve shall be opened in a single operation by turning or moving a valve actuator to max.  $90^\circ$  or max. 200 mm stroke. The maximum force for the operation shall be 100 N or the maximum torque 7 Nm. By using this force/torque, the valve shall be fully open within 1 s.

Also for automatic operation, the valve shall be fully open within 1 s.

The valve shall not close automatically once it has been opened. The direction of operating the valve actuator shall be clearly visible and unmistakable.

The valve actuator shall be large enough to be easily located and operated by the user even when wearing protective gloves with a maximum size in accordance with EN 420. The valve actuator shall be positioned between floor level and max. 1750 mm above that level.

NOTE Attention is drawn to national regulations in some European countries, e. g. Sweden, requesting the actuator to be operable at floor level.

### 7 Shower head

It shall only be possible to make adjustments with a tool to the direction of spray or the water distribution of a shower head.

The shower head shall be self-draining between the valve and the outlet. The shower head shall be removable for maintenance but only by use of a tool.

### 8 Manufacturer's information

The manufacturer shall supply with the emergency body shower information on installation, operation and maintenance as well as the method and frequency of routine testing.

NOTE Attention is drawn to national regulations that may apply for installation, maintenance and routine testing.

## 9 Marking

The shower shall be clearly and permanently marked showing requirements for minimum and maximum flow pressure and the maximum static pressure. Marking shall be performed by the manufacturer and shall show the name of the manufacturer and the model/article number.

In addition a safety sign in accordance with ISO 3864-1 displayable near the shower shall be supplied with each emergency body shower.

**Annex A**  
(informative)  
**Water temperature**

Continuous and timely irrigation of affected tissues for the recommended irrigation period are the principal factors in providing first aid treatment. Providing water at temperatures conducive to use for the recommended irrigation period is considered an integral part of providing suitable facilities. Medical recommendations suggest water at tepid temperatures be delivered to affected chemically-injured tissue. Temperatures in excess of 37 °C have proven to be harmful to the eyes and can enhance chemical interaction with the eyes and skin.

While cold water temperatures provide immediate cooling after burns or chemical contact, prolonged exposure to cold water affects the ability to maintain adequate body temperature and can result in the premature cessation of first aid treatment. Recent information indicates that a temperature of 15 °C is suitable for the lower parameter for tepid water without causing hypothermia to the equipment user.