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Požarna zaščita - Avtomatski sprinklerski sistemi - 3. del: Zahteve in preskusne metode za suhe alarmne ventile

Fire protection -- Automatic sprinkler systems -- Part 3: Requirements and test methods for dry pipe valves

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Protection contre l'incendie -- Systèmes d'extinction automatiques du type sprinkler --
Partie 3: Exigences et méthodes d'essai des postes de contrôle sous air

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**Fire protection — Automatic
sprinkler systems —**

**Part 3:
Requirements and test methods for
dry pipe valves**

*Protection contre l'incendie — Systèmes d'extinction automatiques du
type sprinkler —
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ISO 6182-3:2012(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6182-3 was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 5, *Fixed firefighting systems using water*.

This third edition cancels and replaces the second edition (ISO 6182-3:2005), which has been technically revised.

ISO 6182 consists of the following parts, under the general title *Fire protection — Automatic sprinkler systems*:

- *Part 1: Requirements and test methods for sprinklers*
- *Part 2: Requirements and test methods for wet alarm valves, retard chambers and water motor alarms*
- *Part 3: Requirements and test methods for dry pipe valves*
- *Part 4: Requirements and test methods for quick-opening devices*
- *Part 5: Requirements and test methods for deluge valves*
- *Part 6: Requirements and test methods for check valves*
- *Part 7: Requirements and test methods for early suppression fast response (ESFR) sprinklers*
- *Part 8: Requirements and test methods for pre-action dry alarm valves*
- *Part 9: Requirements and test methods for water mist nozzles*
- *Part 10: Requirements and test methods for domestic sprinklers*
- *Part 11: Requirements and test methods for pipe hangers*
- *Part 12: Requirements and test methods for grooved-end components for steel pipe systems*

Introduction

This part of ISO 6182 is one of a number of International Standards prepared by ISO/TC 21 covering components for automatic sprinkler systems, including the following:

- a) Carbon dioxide systems (ISO 6183);
- b) Explosion suppression systems (ISO 6184).

An International Standard covering foam systems is planned.

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Fire protection — Automatic sprinkler systems —

Part 3: Requirements and test methods for dry pipe valves

1 Scope

This part of ISO 6182 specifies performance, requirements, methods of test and marking requirements, for dry pipe valves and manufacturer's specified relevant trim used in dry pipe automatic fire protection systems.

Performance and test requirements for other auxiliary components or attachments to dry pipe valves are not covered by this part of ISO 6182. Quick opening devices, including accelerators, used with dry pipe valves are covered in 6182-4.

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 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread*

ISO 898-2, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 2: Nuts with specified property classes — Coarse thread and fine pitch thread*

3 Terms and definitions

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

3.1

alarm device

mechanical or electrical device to sound an alarm upon operation of the valve

3.2

automatic drain

normally open device that automatically drains water from and vents the intermediate chamber of a valve to the atmosphere when the valve is in the ready position, and limits water flow from the chamber after the valve has tripped

3.3

clapper

type of sealing element

NOTE See also 3.18.

3.4

corrosion-resistant material

metallic material of bronze, brass, Monel¹⁾ metal, austenitic stainless steel, or equivalent, or plastic material conforming with the requirements of this part of ISO 6182

1) Monel is an example of a suitable product available commercially. This information is given for the convenience of users of this part of ISO 6182 and does not constitute an endorsement by ISO of this product.

ISO 6182-3:2012(E)**3.5
differential**

ratio of service pressure to system air pressure (expressed as gauge pressures) at the trip point

NOTE See also 3.24.

**3.6
differential-type valve**

type of valve in which air pressure in the system acts directly and/or indirectly on the sealing assembly to maintain it in the closed position

NOTE The air seat of the sealing assembly is of equal or larger diameter than the diameter of the water seat of the sealing assembly, with the two separated by an intermediate chamber maintained at atmospheric pressure.

**3.7
dry pipe system**

automatic fire protection system in which the piping contains air or nitrogen under pressure, the release of which allows water from a water supply to discharge through the system

**3.8
dry pipe valve**

valve that controls the flow of water into a dry pipe sprinkler system and incorporates provision for actuation of an alarm under specified conditions

**3.9
flow velocity**

speed of water flow through a valve expressed as the equivalent water velocity through a pipe of the same nominal size as the valve

**3.10
intermediate chamber**

that part of a valve which separates the air and/or water sealing assembly seating surfaces and is at atmospheric pressure when the valve is in the ready condition

**3.11
leak point**

system air pressure for a specific service pressure at which water begins to flow from the intermediate chamber, automatic drain valve or alarm connection

**3.12
mechanical-type valve**

type of valve in which the air pressure in the system acts on the sealing assembly and linking mechanism to maintain it in the closed position

**3.13
minimum opening pressure**

minimum pressure when water begins to pass through the valve

**3.14
priming water**

water used to seal a sealing assembly and prevent cementation of working parts

**3.15
rated working pressure**

maximum service pressure at which a valve is intended to operate

**3.16
ready (set) condition**

state of a valve with the sealing assembly in the closed or set position with service and system pressure applied

3.17**reinforced elastomeric element**

element of clapper, clapper assembly or seat seals in a composite of an elastomeric compound with one or more other components

3.18**sealing assembly**

main movable sealing element (such as a clapper or diaphragm) of the valve which prevents the reverse flow of water and which maintains air pressure in the system piping

3.19**sealing assembly seat ring**

main fixed sealing element of a valve which prevents the reverse flow of water and which maintains air pressure in the system piping

3.20**service pressure**

static water pressure at the inlet to a valve when the valve is in the ready condition

3.21**system air pressure**

static air pressure in the system piping when the valve is in the ready condition

3.22**system pressure**

static water pressure at the main outlet of a valve when the valve is in the ready condition

3.23**trim**

external equipment and pipework, excluding the main installation pipework, fitted to valve installation assembly

3.24**trip point**

point at which a valve operates, admitting water into the system, measured in terms of the system air pressure at a given service pressure

3.25**water motor alarm**

hydraulically driven device which provides a local audible alarm as a result of a flow through a valve

4 Requirements

4.1 Nominal sizes

The nominal size of a valve shall be the nominal diameter of the inlet and outlet connections, i.e. the pipe size for which the connections are intended. Sizes shall be 40 mm, 50 mm, 65 mm, 80 mm, 100 mm, 125 mm, 150 mm, 200 mm, 250 mm or 300 mm. The diameter of the waterway through the sealing assembly seat ring may be less than the nominal size.

4.2 Connections

4.2.1 All connections shall have been designed for use at the rated working pressure of the valve.

4.2.2 The dimensions of all connections shall conform with the applicable requirements of International Standards. If International Standards are not applicable, national standards shall be permitted to be used.

4.2.3 An opening not smaller than 15 mm nominal diameter shall be provided for an alarm line connection.