SLOVENSKI STANDARD
SIST ISO 6182-5:1997

01-december-1997

Poģarna zaģļ ita - Avtomatski sprinklerski sistemi - 5. del: Zahteve in preskusne metode za poplavne ventile

Fire protection -- Automatic sprinkler systems -- Part 5: Requirements and test methods for deluge valves

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Protection contre l'incendie -- Systèmes d'extinction automatiques de type sprinkler -- Partie 5: Prescriptions et méthodes d'essai des postes déluges

SIST ISO 6182-5:1997
https://standards.iteh.ai/catalog/standards/sist/ad6aa815-5af5-4c23-bdfd-24ba5e8a8986/sist-iso-6182-5-1997

Ta slovenski standard je istoveten z: ISO 6182-5:1995

ICS:

13.220.20 Poģarna zaģļ ita Fire protection

SIST ISO 6182-5:1997 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

SIST ISO 6182-5:1997

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST ISO 6182-5:1997
https://standards.iteh.ai/catalog/standards/sist/ad6aa815-5af5-4c23-bdfd-24ba3e8a8986/sist-iso-6182-5-1997

SIST ISO 6182-5:1997

INTERNATIONAL STANDARD

ISO 6182-5

First edition
1995-11-15

Fire protection — Automatic sprinkler systems —

Part 5:

Requirements and test methods for deluge valves

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST ISO 6182-5:1997
https://standards.iteh.ai/catalog/standards/sist/ad6aa815-5af5-4c23-bdf8-24ba2e8a8986/sist-iso-6182-5-1997

Protection contre l'incendie — Systèmes d'extinction automatiques de type sprinkler —

Partie 5: Prescriptions et méthodes d'essai des postes déluges

Reference number
ISO 6182-5:1995(E)

SIST ISO 6182-5:1997

Contents

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST ISO 6182-5:1997
https://standards.iteh.ai/catalog/standards/sist/ad6aa815-5af5-4c23-bdfd-24ba3e8a8986/sist-iso-6182-5-1997

© ISO 1995
All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

SIST ISO 6182-5:1997

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.

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

International Standard ISO 6182-5 was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 5, *Fixed fire extinguishing systems*.

SIST ISO 6182-5:1997
https://standards.iteh.ai/catalog/standards/sist/ad8da075-9af7-4e25-8dfd-24ba3e8a8986/sist-iso-6182-5-1997

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*

Annex A of this part of ISO 6182 is for information only.

SIST ISO 6182-5:1997

Introduction

ISO 6182 comprises several parts prepared by ISO/TC 21 covering components for automatic sprinkler systems.

ISO 6182 is included in a series of International Standards planned to cover:

— carbon dioxide systems (ISO 6183);

— explosion protection systems (ISO 6184);

— foam systems (ISO 7076).

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST ISO 6182-5:1997
https://standards.iteh.ai/catalog/standards/sist/ad6aa815-5af5-4c23-bdfd-24ba3e8a8986/sist-iso-6182-5-1997

SIST ISO 6182-5:1997

Fire protection — Automatic sprinkler systems —

Part 5:
Requirements and test methods for deluge valves

1 Scope

This part of ISO 6182 specifies performance and test requirements for deluge valves employed in deluge and pre-action fire protection systems including specified trim.

Deluge valves covered by these requirements may be operated by hydraulic, pneumatic, electric, mechanical, manual, or thermal means or combinations thereof.

Performance and test requirements for other auxiliary components, such as alarm devices, are not covered by this part of ISO 6182.

This part of ISO 6182 does not cover thermally operated valves released by heat acting directly on the valve. This type of valve utilizes a thermal device, such as the link and lever arrangement or glass bulb of a sprinkler, to hold the valve closed. Operation of the thermal device allows the valve to open.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6182. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 6182 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 37:1994, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties.*

ISO 188:1982, *Rubber, vulcanized — Accelerated ageing or heat-resistance tests.*

ISO 898-1:1988, *Mechanical properties of fasteners — Part 1: Bolts, screws and studs.*

ISO 898-2:1992, *Mechanical properties of fasteners — Part 2: Nuts with specified proof load values — Coarse thread.*

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST ISO 6182-5:1997
https://standards.iteh.ai/catalog/standards/sist/ad6aa815-5af5-4c23-bdfd-24ba3e8a8986/sist-iso-6182-5-1997

3 Definitions

For the purposes of this part of ISO 6182, the following definitions apply.

3.1 alarm device: Mechanical or electrical device to sound an alarm upon operation of the deluge valve.

3.2 anti-reseat latch: Mechanism that prevents the sealing assembly from returning to its set position after operation.

3.3 automatic drain valve: Normally open device that automatically drains water from and vents the intermediate chamber of a deluge valve to the atmosphere when the valve is in the ready position, and limits water flow from the chamber after the valve has tripped.

3.4 clapper: A type of sealing assembly (see 3.16).

3.5 corrosion resistant material: Metallic material of bronze, brass, Monel metal, austenitic stainless steel, or equivalent, or plastics material conforming with the requirements of 4.10.

3.6 deluge system: Automatic fire protection system using a deluge valve which is operated by an auxiliary means to admit water into a system of non-automatic (open) sprinklers or nozzles.

SIST ISO 6182-5:1997

3.7 deluge valve: Automatic water-supply control valve intended to be operated by an auxiliary means to admit water into a system of open piping for a deluge system, or a system of closed piping for a pre-action system. The auxiliary means of operating a deluge valve may be mechanical, electrical, hydraulic, pneumatic, thermal, manual, or a combination of these.

3.7.1 hydraulically operated deluge valve: Valve which is maintained in the set position by service hydraulic pressure acting against a diaphragm or piston which holds the sealing assembly closed. A change in pressure against the diaphragm or piston allows the valve to open. The pressure is changed by operation of a manual control, an electrical device such as a solenoid valve, or a hydraulically, thermally, or pneumatically operated device.

3.7.1.1 pressure-loss operated deluge valve: A type of hydraulically operated deluge valve in which the valve is released from the set position by reducing the pressure acting against an auxiliary diaphragm or piston.

3.7.1.2 supply-pressure operated deluge valve: Deluge valve which is maintained in the set position by a spring or other means and is hydraulically operated by the application of supply pressure to an auxiliary diaphragm or piston.

3.7.2 mechanically operated deluge valve: Valve which is maintained in the set position by a mechanical means. It is released mechanically, for example by the action of a release weight.

3.8 dry pilot actuator: Differential type valve which, upon loss of pneumatic pressure from a dry pilot line, permits the operation of a hydraulically operated deluge valve.

3.9 dry pilot line: Pneumatic detection and actuation piping system fitted with heat responsive devices, usually sprinklers, which, when subjected to an abnormal source of heat, operate to release pressure from the piping system and dry pilot actuator, causing the automatic operation of a deluge valve.

3.10 flow velocity: The rate of water flow through a deluge valve expressed as the equivalent water velocity through a pipe of the same nominal size as the deluge valve.

3.11 pre-action systems: Automatic fire protection system using a deluge valve which is operated by an auxiliary means to admit water into a system of automatic sprinklers or nozzles.

3.12 priming water: Water used to seal a sealing assembly in a pre-action system or to reduce the water delivery time in a deluge system.

3.13 rated working pressure: Maximum service pressure at which a deluge valve is intended to operate.

3.14 ready (set) condition: State of a deluge valve with the sealing assembly in the closed or set position with service pressure applied.

3.15 reinforced elastomeric element: A composite of an elastomeric compound with one or more components that increase the tensile strength of the combination to at least twice that of the elastomeric material alone.

3.16 sealing assembly: Main movable sealing element (such as a clapper) of the deluge valve.

3.17 service pressure: Static water pressure at the inlet to a deluge valve when the valve is in the ready condition.

3.18 system air pressure: Static air pressure in the system piping downstream of the sealing assembly of the deluge valve in the ready condition.

3.19 trim: External equipment and pipework, excluding the main installation pipework, fitted to a deluge valve installation assembly.

3.20 trip point: Point at which a deluge valve operates, admitting water into the system piping, usually measured in terms of the system, service, or auxiliary pressure at which the valve operates.

3.21 water motor alarm: Hydraulically actuated device which provides a local, audible alarm as a result of water flow through a deluge valve.

3.22 water motor transmitter: Hydraulically actuated device which generates an electrical current for a remote alarm as a result of operation of the deluge valve.

3.23 wet pilot line: Hydraulic detection and actuation piping system fitted with heat responsive devices, usually automatic sprinklers, which, when subjected to an abnormal source of heat, operate to release pressure from the piping system causing the automatic operation of a hydraulically operated deluge valve.

4 Deluge valve requirements

4.1 Nominal sizes

The nominal size of a deluge valve shall be the nominal diameter of the inlet and outlet connections,

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST ISO 6182-5:1997
https://standards.iteh.ai/catalog/standards/sist/...-24ba3e8a8986/sist-iso-6182-5-1997

SIST ISO 6182-5:1997

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 or 250 mm.

NOTE 1 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 be suitable for use at the rated working pressure of the deluge valve.

NOTE 2 The dimension of all connections should conform to International Standards, where these exist. National standards may be used where International Standards are not appropriate.

4.2.2 If priming water is required to seal the downstream side of the sealing assembly, external means shall be provided to introduce priming water.

4.2.3 Deluge valves, which require priming water, shall be provided with a means of preventing water columning and of facilitating the checking of water level.

4.2.4 Suitable means shall be provided to facilitate testing of alarms without tripping the valve.

4.2.5 Means shall be provided to automatically drain the pipe between the alarm shut-off valve and the alarm device.

4.2.6 Deluge valves used in non-primed systems shall be provided with a means of sounding an alarm, if water enters the downstream piping to an elevation of greater than 0,5 m above the sealing assembly, unless the valve is provided with automatic drainage.

4.3 Rated working pressures

The rated working pressure shall be not less than 12 bar (1,2 MPa).

Inlet and outlet connections may be machined for lower working pressure to match installation equipment of a lower working pressure, in which case the valve shall be marked with the lower working pressure [see 7.2 f)].

4.4 Bodies and covers

4.4.1 If non-metallic materials (other than gaskets and seals) or metals with a melting point of less than 800 °C (other than gaskets and seals) form part of the deluge valve body or cover, the assembled valve shall be subjected to the fire exposure test of 6.8. After the fire test, the sealing assembly shall open freely and the valve body shall withstand a hydrostatic pressure test without leakage, permanent deformation or rupture.

4.4.2 Provisions shall be made, on the upstream side of the valve sealing assembly, for testing alarm devices without tripping the valve.

4.4.3 The body and cover shall be made of a material with corrosion resistance at least equivalent to that of cast iron. For extreme corrosion conditions, other materials can be necessary.

4.4.4 It shall not be possible to assemble the deluge valve with the cover plate (if fitted) in a position which either improperly indicates flow direction or so affects the operation of the deluge valve that it does not meet the requirements of this part of ISO 6182 [see 7.2 d) and 7.2 h)].

4.4.5 Failure of diaphragms or seals shall not prevent the deluge valve sealing assembly from opening.

4.5 Strength

4.5.1 The assembled deluge valve, with the sealing assembly open, shall withstand, without rupture, an internal hydrostatic pressure of four times the rated working pressure, for a period of 5 min when tested in accordance with 6.5.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST ISO 6182-5:1997
https://standards.iteh.ai/catalog/standards/sist/ae6ae8f3-5a15-4e23-a8da-24ba3e8a8986/sist-iso-6182-5-1997

4.5.2 The calculated load of any fastener, neglecting the force required to compress the gasket, shall not exceed the minimum tensile strength specified in ISO 898-1 and ISO 898-2 when the deluge valve is pressurized to four times the rated working pressure. The area of the application of pressure shall be calculated as follows.

a) If a full-face gasket is used, the area of application is that extending out to a line defined by the inner edge of the bolts.

b) If an "O"-ring seal or ring gasket is used, the area of application is that extending out to the centreline of the "O"-ring or gasket.

4.6 Drain

The deluge valve shall be provided with a tapped opening to drain water from the valve body when the valve is installed in any position specified or recommended by the manufacturer. The minimum opening size shall be 20 mm nominal.

NOTE 3 If the drain opening on the valve is to be used for draining pipework, then the size of the opening should comply with any national standards which may be applicable (see 4.2.1).

4.7 Access for maintenance

Means shall be provided to permit access to working parts and to allow removal of the sealing assembly.