



SLOVENSKI STANDARD

SIST EN 13160-6:2003

01-december-2003

Sistemi za kontrolo tesnosti - 6. del: Senzorji v nadzornih jaških

Leak detection systems - Part 6: Sensors in monitoring wells

Leckanzeigesysteme - Teil 6: Sensoren in Überwachungsschächten

Systemes de détection de fuites - Partie 6: Systemes statiques de détection de fuites dans les puits piézométriques

(standards.iteh.ai)

Ta slovenski standard je istoveten z: **EN 13160-6:2003**

<https://standards.iteh.ai/catalog/standards/sist/4c59b646-e758-4c46-8469-7be49d4cb3db/sist-en-13160-6-2003>

ICS:

23.020.01	Vsebniki za shranjevanje tekočin na splošno	Fluid storage devices in general
-----------	---	----------------------------------

SIST EN 13160-6:2003

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13160-6:2003

<https://standards.iteh.ai/catalog/standards/sist/4c59b646-e758-4c46-8469-7be49d4cb3db/sist-en-13160-6-2003>

EUROPEAN STANDARD

EN 13160-6

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2003

ICS 23.020.01; 23.040.99; 29.260.20

English version

Leak detection systems - Part 6: Sensors in monitoring wells

Systèmes de détection de fuites - Partie 6: Systèmes
statiques de détection de fuites dans les puits
piézométriques

Leckanzeigesysteme - Teil 6: Sensoren in
Überwachungsschächten

This European Standard was approved by CEN on 10 March 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

iTeh STANDARD PREVIEW
(standards.itih.ai)

<https://standards.itih.ai/catalog/standards/sist/4c59b646-e758-4c46-8469-7be49d4cb3db/sist-en-13160-6-2003>



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	page
Foreword.....	3
1 Scope	3
2 Normative references	3
3 Terms and definitions.....	4
4 General.....	4
5 Monitoring wells.....	4
6 Discriminating liquid sensors.....	6
7 Vapour sensor	6
8 Leak indicating device.....	6

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 13160-6:2003](https://standards.iteh.ai/catalog/standards/sist/4c59b646-e758-4c46-8469-7be49d4cb3db/sist-en-13160-6-2003)

<https://standards.iteh.ai/catalog/standards/sist/4c59b646-e758-4c46-8469-7be49d4cb3db/sist-en-13160-6-2003>

Foreword

This document (EN 13160-6:2003) has been prepared by Technical Committee CEN /TC 221, "Shop fabricated metallic tanks and equipment for storage tanks and service stations", the secretariat of which is held by DIN.

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 November 2003, and conflicting national standards shall be withdrawn at the latest by November 2002.

This European Standard consists of 7 parts:

Leak detection systems;

Part 1: General principles

Part 2: Pressure and vacuum systems

Part 3: Liquid systems for tanks

Part 4: Liquid and/or vapour sensor systems for use in leakage containments or interstitial spaces

Part 5: Tank gauge leak detection systems

Part 6: Sensors in monitoring wells

Part 7: General requirements and test methods for interstitial spaces, leak protecting linings and leak protecting jackets

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13160-6:2003

[https://standards.iteh.ai/catalog/standards/sist/4c59b646-e758-4c46-8469-](https://standards.iteh.ai/catalog/standards/sist/4c59b646-e758-4c46-8469-7be49d4cb3db/sist-en-13160-6-2003)

[7be49d4cb3db/sist-en-13160-6-2003](https://standards.iteh.ai/catalog/standards/sist/4c59b646-e758-4c46-8469-7be49d4cb3db/sist-en-13160-6-2003)

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies the requirements for leak detection systems – class V for use with systems designed for fuels which are flammable, having a flash point up to but not exceeding 100 °C.

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 (including amendments).

EN 13160–1:2003, *Leak detection systems — Part 1: General principles.*

EN 13160–4:2003, *Leak detection systems - Part 4: Liquid and/or vapour sensor systems for use in leakage containments or interstitial spaces.*

EN 60529:1991, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989).*

EN 13160-6:2003 (E)**3 Terms and definitions**

For the purpose of this standard the terms and definitions according to EN 13160–1:2003 apply.

4 General

General principles according to EN 13160-1.

5 Monitoring wells

Shall be bored into the ground, with a minimum diameter of 300 mm.

Where liquid sensors are used, the monitoring well shall extend from the ground level to a depth of at least 1,0 m below:

- a) the lowest normal groundwater level, or
- b) the lowest point of any tank or pipe, whichever is lower.

Where vapour sensors are used, the monitoring well shall extend from the ground level to a depth of at least 1,0 m below the lowest point of any tank or pipe.

Where there is the risk that the normal groundwater level will fall below the point 1,0 m above the lowest perforation opening of a monitoring well, vapour sensors shall be used.

Shall have a casing which is perforated uniformly, both vertically and circumferentially, which extends from ground level to the lowest point of the well. The pattern of perforations shall be designed to permit entry of liquid into the well at any height, but shall be small enough to prevent inflow of the surrounding ground material.

NOTE 1 The casing should be constructed with sufficient strength so that the well is not distorted under pressure of the surrounding ground, whether empty or full of liquid.

Shall have a top cap sealed to a minimum standard of IP 66 according to EN 60529:1991, to prevent entry into the well of surface water, liquid spills etc. The cap shall be removable to allow inspection of the contents of the well.

Shall have a bottom seal fixed permanently to the casing to prevent the entry of ground material during installation or in service.

NOTE 2 Sufficient monitoring wells should be installed around a system and positioned to ensure that any leakage of stored product from any part of the system will reach a monitoring well.

Specification for the monitoring well casing:

Size:	minimum 100 mm inner diameter
Wall thickness:	minimum 6,0 mm
Material:	eg Polyethylene (PE) or equivalent
Slots:	0,4 to 0,6 mm wide 45 to 55 mm long equally spaced around the circumference of the casing 6,8 mm vertical spacing.

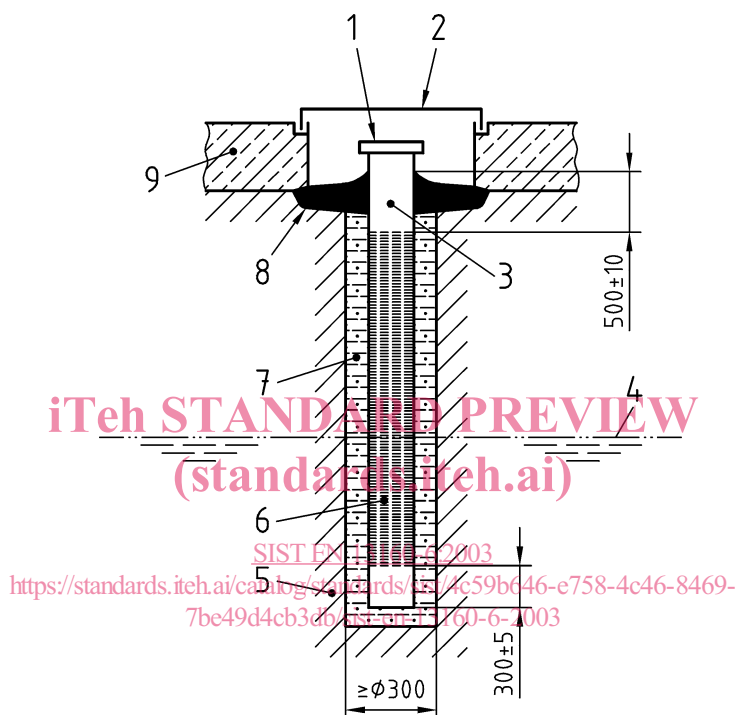
The casing shall be closed at the bottom.

NOTE 3 In ground conditions where fine soil is present that would pass through the slots a filter screen should be fitted of such size as to prevent passage of the ground material.

NOTE 4 Monitoring wells should not be used where the ground material does not allow adequate permeation of stored product or vapour between the storage system and the monitoring well. Monitoring wells should be surrounded by filler sand or pea shingle to at least 300 mm diameter.

Construction of a monitoring well, see Figure 1.

Dimensions in millimetres



Key

- 1 Lockable well seal
(IP 66 according to EN 60529:1991)
- 2 Monitoring well cover
- 3 Unperforated pipe in sealed area
- 4 Groundwater level
- 5 Ground material
- 6 Perforated casing
- 7 Filler sand or pea shingle
- 8 Sealed to prevent contamination from above
- 9 Concrete or bitumen

Figure 1 — Construction of monitoring wells

EN 13160-6:2003 (E)**6 Discriminating liquid sensors**

In the event of a sensor disconnection or a short circuit, an alarm condition shall result.

Shall be chemically resistant to air and water.

Shall be capable of differentiating between water and the stored product, and shall not give an alarm condition in the presence only of water.

If the sensor requires the presence of groundwater for correct operation, and the level of groundwater falls below the minimum or rises above the maximum necessary for correct operation, an alarm condition shall result.

The sensor shall meet the performance requirements laid down in the schedule for type testing according to EN 13160-4:2003, clause 11.

7 Vapour sensor

In the event of a sensor disconnection or a short circuit, an alarm condition shall result.

Shall be chemically resistant to air and water.

Shall give an alarm condition in the presence of vapour of the stored product.

Vapour sensors used in any location where there is the risk that they could become submerged in water or any other liquid shall sound an alarm on becoming submerged.

The sensors shall comply with the test criteria according to EN 13160-4:2003, clause 12 or clause 13.

[SIST EN 13160-6:2003](https://standards.iteh.ai/catalog/standards/sist/4c59b646-e758-4c46-8469-7be49d4cb3db/sist-en-13160-6-2003)

8 Leak indicating device

<https://standards.iteh.ai/catalog/standards/sist/4c59b646-e758-4c46-8469-7be49d4cb3db/sist-en-13160-6-2003>

A leak indicating device shall be provided.

An alarm shall be indicated on detecting the presence of stored product or on detecting the absence of water, when this is required for correct operation.