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**Information technology — Cases for  
120 mm and 80 mm DVD-RAM disks**

*Technologies de l'information — Coffrets pour disques DVD-RAM de  
120 mm et 80 mm*

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## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national 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 and IEC shall not be held responsible for identifying any or all such patent rights.

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# Information technology — Cases for 120 mm and 80 mm DVD-RAM disks

## Section 1 - General

### 1 Scope

This International Standard specifies the characteristics of a case for use with the 120 mm and 80 mm DVD-RAM disks specified in International Standard ISO/IEC 17592. The present International Standard specifies nine related, but different implementations of this case, viz.

- Type 1** A case for a one-sided (Type 1S) or a two-sided (Type 2S) 120 mm DVD-RAM disk such that the disk cannot be removed from the case. This case is reversible.
- Type 2** A case for a one-sided (Type 1S) 120 mm DVD-RAM disk such that the disk may be removed from the case. This case is not reversible.
- Type 3** A case into which a one-sided (Type 1S) or a two-sided (Type 2S) 120 mm DVD-RAM disk may be inserted, then used as a cartridge. This case is not reversible.
- Type 4** A case for a two-sided (Type 2S) 120 mm DVD-RAM disk such that the disk may be removed from the case. This case is reversible.
- Type 5** A case into which a one-sided (Type 1S) or a two-sided (Type 2S) 120 mm DVD-RAM disk may be inserted, then used as a cartridge. This case is reversible.
- Type 6** A case for a two-sided (Type 2S) 80 mm DVD-RAM disk such that the disk may be removed from the case. This case is reversible.
- Type 7** A case for a one-sided (Type 1S) 80 mm DVD-RAM disk such that the disk may be removed from the case. This case is not reversible.
- Type 8** A case into which a two-sided (Type 2S) 80 mm DVD-RAM disk may be inserted, then used as a cartridge. This case is reversible.
- Type 9** A case into which a one-sided (Type 1S) 80 mm DVD-RAM disk may be inserted, then used as a cartridge. This case is not reversible.

This International Standard specifies

- the environments in which the cases are to be operated and stored;
- the dimensional and mechanical characteristics of the case, so as to provide mechanical interchangeability between data processing systems;

This International Standard provides for mechanical interchange between optical disk drives. Together with International Standard ISO/IEC 17592 for 120 mm (4,7 Gbytes per side) and 80 mm (1,46 Gbytes per side) DVD-RAM disks and a standard for volume and file structure, it provides for full data interchange between data processing systems.

### 2 Conformance

A claim of conformance with this International Standard shall specify the Type implemented. A case shall be in conformance with this International Standard if it meets the mandatory requirements specified herein for its Type.

### 3 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/IEC 17592:2004, *Information technology — 120 mm (4,7 Gbytes per side) and 80 mm (1,46 Gbytes per side) DVD Rewritable Disk (DVD-RAM)*

ECMA-287:2002, *Safety of electronic equipment*

### 4 Definitions

For the purpose of this International Standard the following definitions apply:

#### 4.1

##### **cartridge**

a device consisting of a case containing a rewritable disk

#### 4.2

##### **case**

the housing for an optical disk, that protects the disk and facilitates disk interchange

### 5 Conventions and notations

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#### 5.1 Representation of numbers

A measured value is rounded off to the least significant digit of the corresponding specified value. For instance, it implies that a specified value of 1,26 with a positive tolerance of + 0,01 and a negative tolerance of - 0,02 allows a range of measured values from 1,235 to 1,275.

#### 5.2 Names

The names of entities, e.g. specific sides, etc. are given a capital initial.

### 6 General description of the case

#### 6.1 General description of the Type 1 case (Figure 1)

The case is a rigid protective container of rectangular shape. Sides A and B of the case are identical as far as the features given here are concerned. References to Sides A and B of the case can be changed to B or A, respectively. When the opening of the one is a head and spindle window for the spindle and the optical head of the drive, that of the other is an access window for the disk clamping apparatus. A shutter uncovers the windows upon insertion into the drive, and automatically covers them upon removal from the drive. The case has features that enable a drive to reject a mis-inserted cartridge, to inhibit writing, sensor holes, detents for autoloading and a vertical use, gripper slots for an autochanger, label areas and side identification marks.

Sides A and B of the case have the same configuration.

#### 6.2 General description of the Type 2 case (Figure 2)

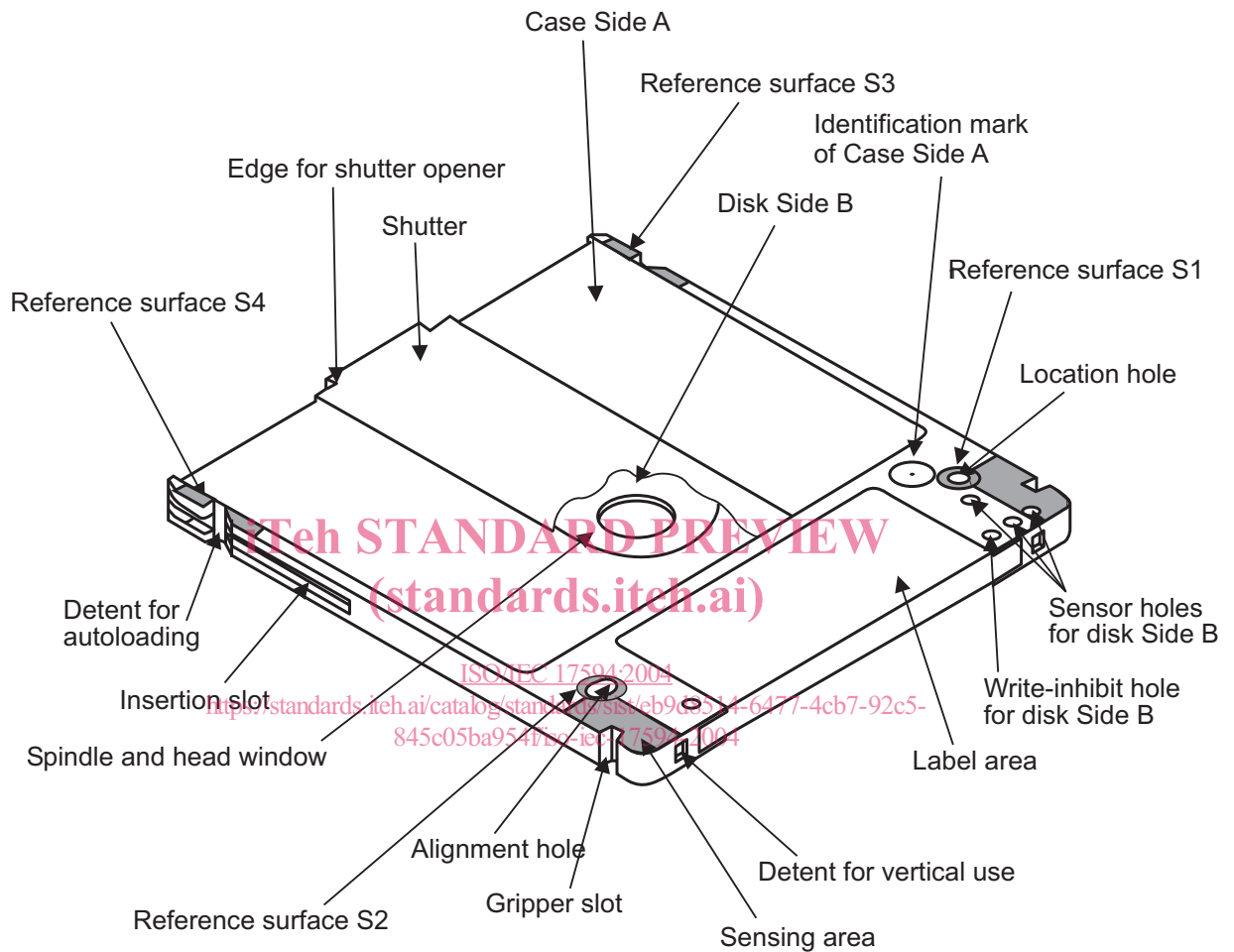
The Type 2 case has the same features as the Type 1 case, but with some differences. The shape of the case is different on Side A and on Side B. Side A does not need to have a location hole, an alignment hole, Reference Surfaces, a write-inhibit hole, sensor holes and sensing areas. The case has an opening closed by a cover. This cover can be opened. In open position, the disk can be taken out of the case. Sensor hole A1 is originally closed. If the disk has been removed from the case, then this hole remains permanently open,



indicating that the original disk contained in the case has been removed at least once or has been replaced by another disk.

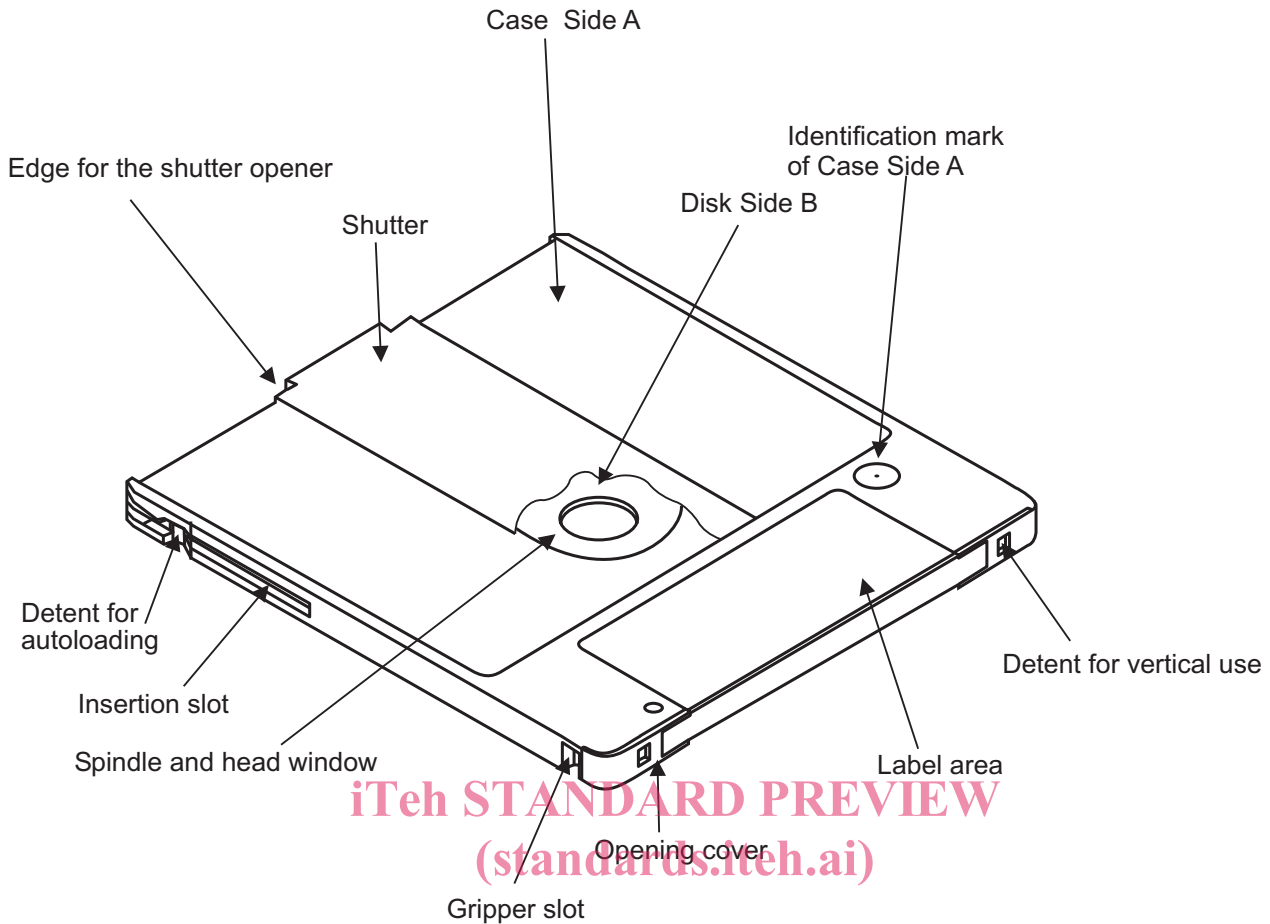
### 6.3 General description of the Type 3 case (Figure 2)

The Type 3 case is identical with Type 2 case except that the sensor hole A1 is always open.



01-0088-A

Figure 1 - General view of the Type 1 case, seen from Side A



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01-0089-A

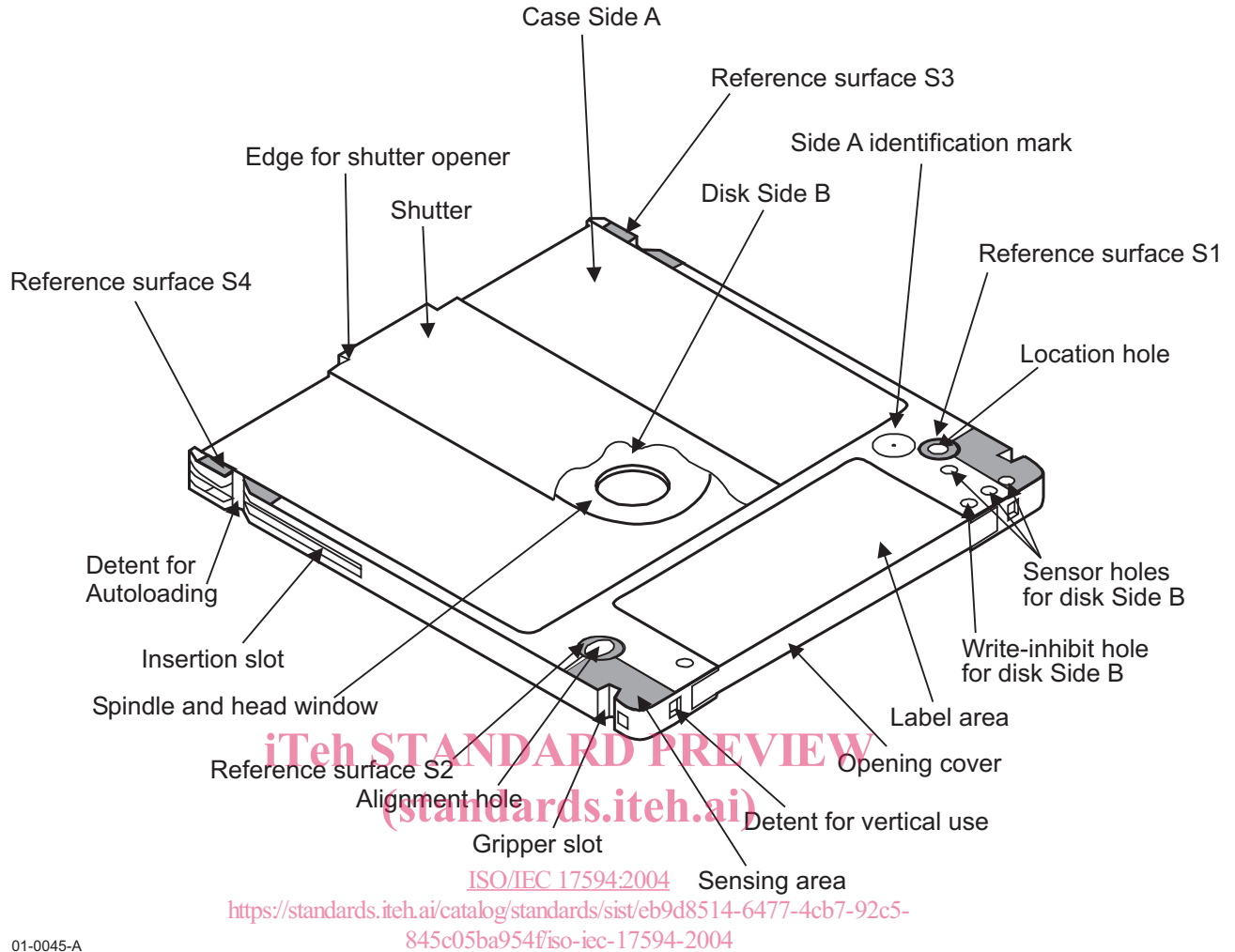
**Figure 2 - General view of the Type 2 and Type 3 cases, seen from Side A**

#### 6.4 General description of the Type 4 case (Figure 3)

The Type 4 case has the same features as the Type 1 case, but with some differences. The case has an opening closed by a cover. This cover can be opened. In open position, the disk can be taken out of the case. If the disk has been removed from the case, then the sensor hole A1 and B1 remain permanently open, indicating that the original disk contained in the case has been removed at least once or has been replaced by another disk.

#### 6.5 General description of the Type 5 case (Figure 3)

The Type 5 case is identical with Type 4 case except that the sensor hole A1 and B1 are always open.



**Figure 3 - General view of the Type 4 and Type 5 cases, seen from Side A**

## 6.6 General description of the Type 6 case (Figure 4)

The case is a rigid protective container of rectangular shape. It consists of a body and a disk holder. This disk holder can be taken out of the body and then the disk can be taken out of the case. Sensor hole A1 and B1 are originally closed. If the disk holder has been taken out of the body, then these holes remain permanently open, indicating that the original disk contained in the case has been removed at least once or has been replaced by another disk. Sides A and B of the case are identical as far as the features given here are concerned. References to Sides A and B of the case can be changed to B or A, respectively. When the opening of the one is a head and spindle window for the spindle and the optical head of the drive, that of the other is an access window for the disk clamping apparatus. A shutter uncovers the windows upon insertion into the drive, and automatically covers them upon removal from the drive. The case has features that enable a drive to reject a mis-inserted cartridge, to inhibit writing, sensor holes, detents for autoloading and a vertical use, gripper slots for an autochanger, label areas and side identification marks.

Sides A and B of the case have the same configuration.

## 6.7 General description of the Type 7 case (Figure 5)

The Type 7 case has the same features as the Type 6 case, but with some differences. The shape of the case is different on Side A and on Side B. Side A does not need to have a location hole, an alignment hole, Reference Surfaces, a write-inhibit hole, sensor holes and sensing areas. Sensor hole A1 is originally closed. If the disk holder has been taken out of the body, then this hole remains permanently open, indicating that the

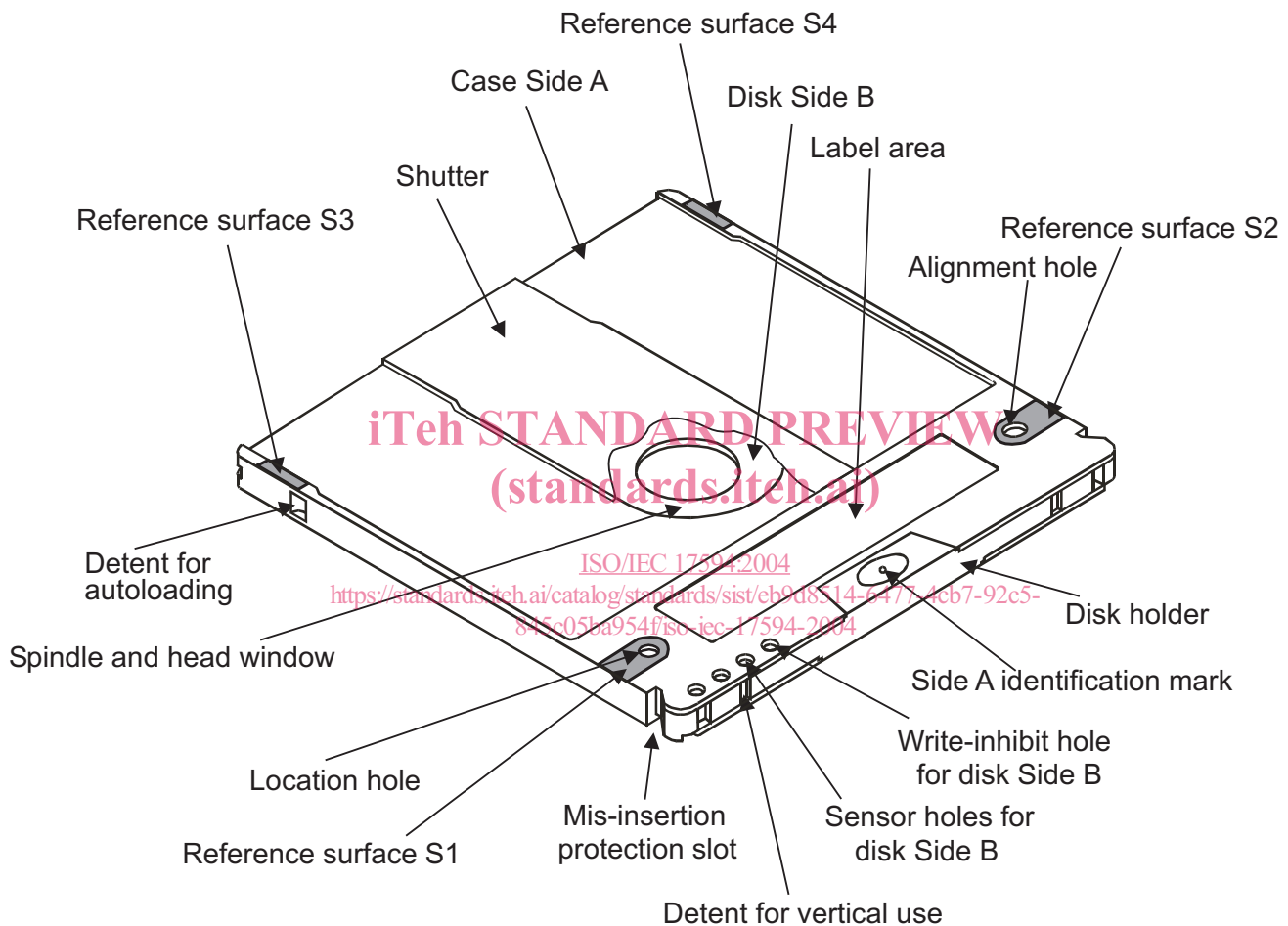
original disk contained in the case has been removed at least once or has been replaced by another disk. Side B of this case shall not have label area.

**6.8 General description of the Type 8 case (Figure 4)**

The Type 8 case is identical with Type 6 case except that the sensor hole A1 and B1 are always open.

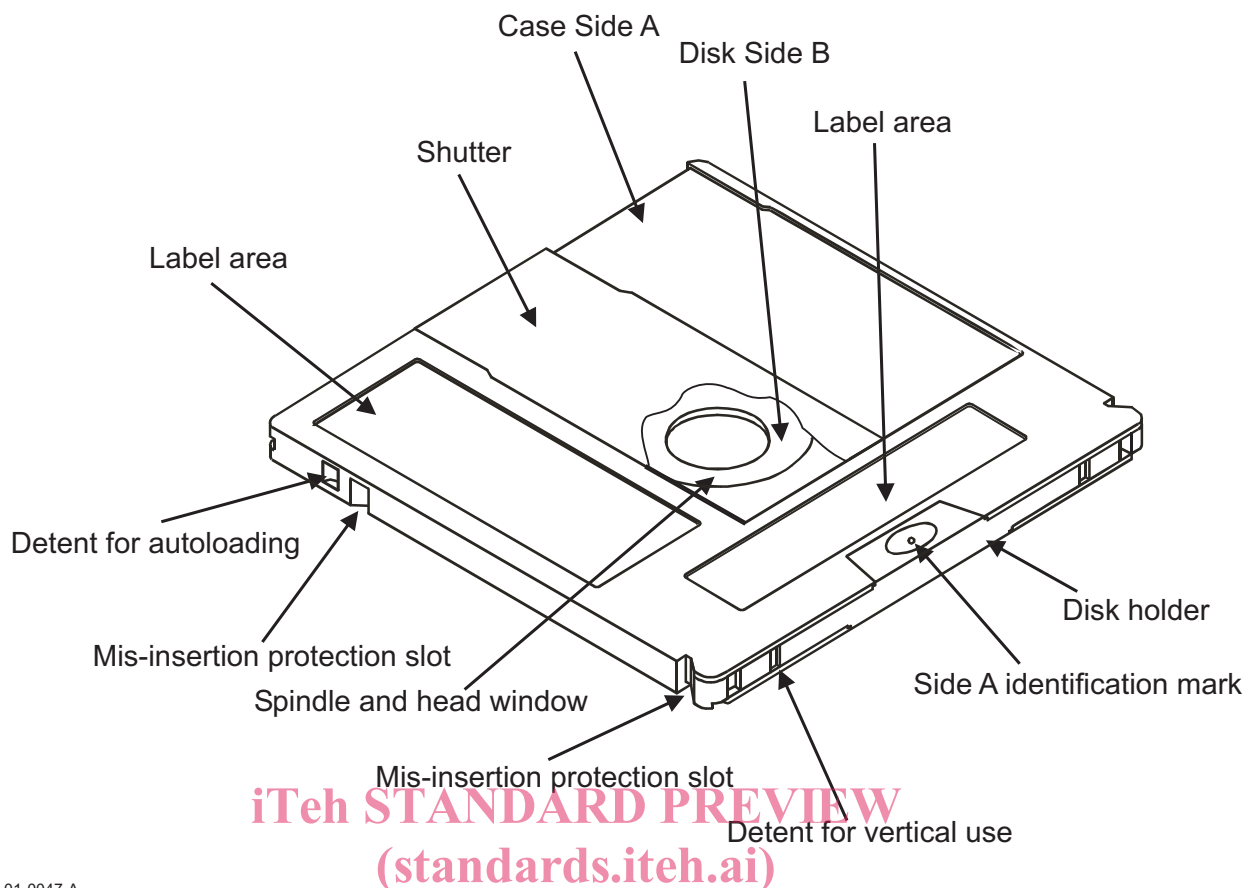
**6.9 General description of the Type 9 case (Figure 5)**

The Type 9 case is identical with Type 7 case except that the sensor hole A1 is always open.



01-0046-A

**Figure 4 - General view of the Type 6 and Type 8 cases, seen from Side A**



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ISO/IEC 17594:2004  
 Figure 5 General view of the Type 7 and Type 9 cases, seen from Side A  
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## 7 General requirements

### 7.1 Environments

#### 7.1.1 Test environment

The test environment is the environment where the air immediately surrounding the case has the following properties:

Temperature:	23 °C ± 2 °C
Relative humidity:	50 % ± 5 %
Atmospheric pressure:	86 kPa to 106 kPa

No condensation on or in the case or cartridge shall occur. Before testing, the case or cartridge shall be conditioned in this environment for 48 hours minimum.

Unless otherwise stated, all tests and measurements shall be made in this test environment.

#### 7.1.2 Operating environment

The case shall meet all requirements of this International Standard in the specified test environment and provide mechanical interchange over the specified ranges of environmental parameters in the operating environment. When the case according to this International Standard contains a DVD-RAM disk according to Standard ISO/IEC 17592, they constitute together a cartridge. This cartridge shall meet the requirements of this clause and provides for data interchange.

The operating environment is the environment where the air immediately surrounding the case or cartridge has the following properties:

Temperature:	5 °C to 60 °C
Relative humidity:	3 % to 85 %
Absolute humidity:	1 g/m <sup>3</sup> to 30 g/m <sup>3</sup>
Temperature gradient:	10 °C /h max.
Relative humidity gradient:	10 %/h max.

No condensation on or in the case or cartridge shall occur. If the case or cartridge has been exposed to conditions outside those specified in this clause, it shall be acclimatized in the operating environment for at least 2 h before use.

### **7.1.3 Storage environment**

The storage environment is defined as an environment where the air immediately surrounding the case or cartridge has the following properties.

Temperature:	-10 °C to 50 °C
Relative humidity:	3 % to 85 %
Absolute humidity:	1 g/m <sup>3</sup> to 30 g/m <sup>3</sup>
Atmospheric pressure:	75 kPa to 106 kPa
Temperature gradient:	10 °C /h max.
Relative humidity gradient:	10 %/h max.

No condensation on or in the case or cartridge shall occur.

### **7.1.4 Transportation**

This does not specify requirements for transportation; guidance is given in annex E.

### **7.2 Temperature shock**

The case shall withstand a temperature shock of up to 20°C when inserted into, or removed from, the drive.

### **7.3 Safety requirement**

The case shall satisfy the safety requirements of Standard ECMA-287, when used in the intended manner or in any foreseeable use in an information processing system.

### **7.4 Flammability**

The case shall be made from materials that, if ignited from a match flame, shall not continue to burn in a still carbon dioxide atmosphere.

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ISO/IEC 17594:2004  
Temperature shock: up to 20°C when inserted into, or removed from, the drive.  
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## Section 2 - Dimensional and mechanical characteristics of the case for 120 mm disks

### 8 Dimensional characteristics

The dimensions of the case shall be referred to three orthogonal Reference Planes X, Y and Z. The case shall be constrained such that four reference surfaces S1 to S4 on Side B of the case lie in Reference Plane Z. The intersection of the three planes defines the centre of the location hole. The centre of the alignment hole shall lie on the intersection of Reference Planes X and Z. Refer to annex A. A dimension of a feature referenced to one of the planes is the shortest distance from the feature to the plane.

Side A of the Type 1, Type 4 and Type 5 cases are referred to as the three orthogonal Reference Planes X, Y' and Z', where

- Y' is a plane parallel to Reference Plane Y at a nominal distance of 102,0 mm,
- Z' is a plane parallel to Reference Plane Z at a nominal distance of 8,0 mm.

#### 8.1 Dimensions of the Type 1 case

The dimensions of the Type 1 case shall be measured in the test environment (see 7.1.1). The dimensions of the case in an operating environment (see 7.1.2) can be estimated from the dimensions specified in this clause.

##### 8.1.1 Overall dimensions (Figure 6)

The total length of the case shall be

$$L_{101} = 135,5 \text{ mm} \pm 0,4 \text{ mm} \quad (\text{standards.itech.ai})$$

At a width

$$L_{103} = 3,6 \text{ mm min} \quad (\text{standards.itech.ai})$$

the distance from the top of the case to Reference Plane X shall be

$$L_{102} = 112,5 \text{ mm} \begin{matrix} + 0,3 \text{ mm} \\ - 0,2 \text{ mm} \end{matrix}$$

from the left-hand and right-hand edges of the case.

The distance from the bottom of the case to Reference Plane X shall be

$$L_{104} = 23,0 \text{ mm} \pm 0,2 \text{ mm}.$$

The total width of the case shall be

$$L_{105} = 124,6 \text{ mm} \begin{matrix} + 0,0 \text{ mm} \\ - 0,5 \text{ mm} \end{matrix}$$

The distance from the left-hand side of the case to Reference Plane Y shall be

$$L_{106} = 113,3 \text{ mm} \begin{matrix} + 0,2 \text{ mm} \\ - 0,4 \text{ mm} \end{matrix}$$

The distance from the right-hand side of the case to Reference Plane Y shall be

$$L_{107} = 11,3 \text{ mm} \begin{matrix} + 0,1 \text{ mm} \\ - 0,3 \text{ mm} \end{matrix}.$$

The two corners of the top shall be rounded off with a radius

$$R_{101} = 4,0 \text{ mm} \pm 0,2 \text{ mm}$$