

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial systems, installations and equipment and industrial products –
Structuring principles and reference designations –
Part 2: Classification of objects and codes for classes**

**Systèmes industriels, installations et appareils, et produits industriels –
Principes de structuration et désignations de référence –
Partie 2: Classification des objets et codes pour les classes**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL SYSTEMS, INSTALLATIONS
AND EQUIPMENT AND INDUSTRIAL PRODUCTS –
STRUCTURING PRINCIPLES AND REFERENCE DESIGNATIONS –****Part 2: Classification of objects and codes for classes**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International standard IEC 81346-2 has been prepared by IEC technical committee 3: Information structures, documentation and graphical symbols and ISO technical committee 10: Technical product documentation.

This publication is published as a double logo standard.

This edition cancels and replaces the first edition of IEC 61346-2, published in 2000 and the first edition of IEC/PAS 62400, published in 2005.

This edition includes the following technical changes with respect to IEC 61346-2 Ed.1:

- all rules concerning the application of letter codes have been removed as these should be included in another publication dealing with the application of letter codes within reference designations;

and, with respect to IEC/PAS 62400 Ed.1:

- the definitions of the sub-classes have been reviewed and made consistent;
- the basis for the sub-classification is indicated;
- some new subclasses for class B and class P have been added;
- the table of terms sorted according to the two-letter code has been removed;

The text of this standard is based on the following documents:

FDIS	Report on voting
3/945/FDIS	3/957RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table. In ISO, the standard has been approved by 12 members out of 13 having cast a vote.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 81346 series, formerly IEC 61346 series, published under the general title *Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations*, can be found on the IEC web site.

Future standards in this series will carry the new general number 81346. Numbers of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under “<http://webstore.iec.ch>” in the data related to the specific publication. At this date the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

0.1 General

The aim of this part of IEC 81346 is to establish classification schemes for objects with associated letter codes which can be applied throughout all technical areas, e.g. electrical, mechanical and civil engineering as well as all branches of industry, e.g. energy, chemical industry, building technology, shipbuilding and marine technology. The letter codes are intended for use with the rules for the construction of reference designations in accordance with IEC 81346-1.

Annex A illustrates how objects may be classified according to their intended purpose or task related to a generic process.

Annex B illustrates how objects may be classified according to their position in an infrastructure.

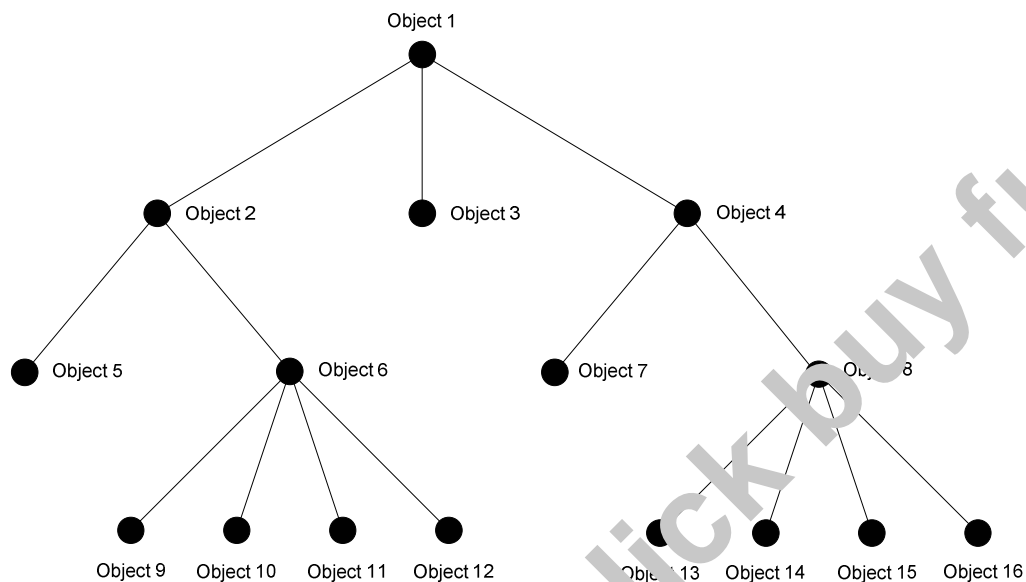
0.2 Basic requirements for this standard

The basic requirements were developed during the preparation of IEC 61346-2 Ed. 1, and accepted by vote by the national committees.

NOTE These basic requirements concern the development of the letter code classification system in this standard and not its application. They are therefore not normative vis-à-vis the application of this standard.

- (1) Letter codes shall be based on a classification scheme.
- (2) A classification scheme is the set of definitions for the types of objects (for example, a classification scheme for function types containing the definition of the different function types of objects).
- (3) A classification scheme shall allow for hierarchical classification of types of objects, i.e. subclasses and superclasses.
- (4) A letter code for a type of object shall be independent of the actual position of the instances of that type of object in a system.
- (5) Distinct classes shall be defined on each level of the classification scheme.
- (6) The definitions of the classes of a particular level within a classification scheme shall have a common basis (for example, a classification scheme that, on one level, classifies objects according to colour shall not contain classes that classify objects by shape). The basis, however, may vary from one level to another.
- (7) A letter code should indicate the type of object and not an aspect of this object.
- (8) A classification scheme shall allow for expansion in order to take into account future development and needs.
- (9) A classification scheme shall be usable within all technical areas without favouring a specific area.
- (10) It shall be possible to use the letter codes consistently throughout all technical areas. The same type of object should preferably have only one letter code independent of the technical area where it is being used.
- (11) It should be possible to indicate in a letter code from which technical area the object originates, if this is wanted.
- (12) A classification scheme should reflect the practical application of letter codes.
- (13) Letter codes should not be mnemonic, as this cannot be implemented consistently throughout a classification scheme and for different languages.
- (14) Letter codes shall be formed using capital letters from the Latin alphabet, excluding I and O due to possible confusion with the digits 1 (one) and 0 (zero).

- (15) Different classification schemes shall be allowed and be applicable for the same type of object.
- (16) Objects may be classified for example according to function types, shapes, colours, or material. This means that the same type of object may be assigned different letter codes according to the different classification schemes.
- (17) Objects that are directly constituents of another object using the same aspect shall be assigned letter codes according to the same classification scheme as shown in Figure 1. See also Figure A.1.



IEC 1272/09

Objects 2, 3, and 4, which are direct constituents of object 1, shall be assigned letter codes from the same classification scheme.

Objects 5 and 6, which are direct constituents of object 2, shall be assigned letter codes from the same classification scheme.

Objects 7 and 8, which are direct constituents of object 4, shall be assigned letter codes from the same classification scheme.

Objects 9, 10, 11, and 12, which are direct constituents of object 6, shall be assigned letter codes from the same classification scheme.

Object 13, 14, 15, and 16, which are direct constituents of object 8, shall be assigned letter codes from the same classification scheme.

Figure 1 – Constituent objects

- (18) If products from different manufacturers are combined into a new product, the constituents of this product may be assigned codes according to different classification schemes.

INDUSTRIAL SYSTEMS, INSTALLATIONS AND EQUIPMENT AND INDUSTRIAL PRODUCTS – STRUCTURING PRINCIPLES AND REFERENCE DESIGNATIONS –

Part 2: Classification of objects and codes for classes

1 Scope

This part of International Standard 81346, published jointly by IEC and ISO defines classes and subclasses of objects based on a purpose- or task-related view of the objects, together with their associated letter codes to be used in reference designations.

The classification is applicable for objects in all technical areas, e.g. electrical, mechanical and civil engineering as well as all branches of industry, e.g. energy, chemical industry, building technology, shipbuilding and marine technology, and can be used by all technical disciplines in any design process.

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.

IEC 81346-1, *Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations – Part 1: Basic rules*

ISO 14617-6:2002 *Graphical symbols for diagrams – Part 6: Measurement and control functions*

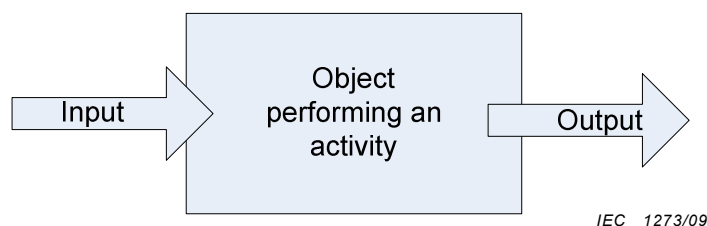
3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 81346-1 apply.

4 Classification principles

4.1 General

The principle of classification of objects is based on viewing each object as a means for performing an activity often with input and output (see Figure 2). In this respect, the internal structure of an object is not important.



IEC 1273/09

Figure 2 – The basic concept