INTERNATIONAL STANDARD

ISO 11933-1

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Components for containment enclosures —

Part 1:
Glove/bag ports, bungs for glove/bag ports, enclosure rings and interchangeable units

Composants pour enceintes de confinement —

Partie 1: Ronds de gant et de sac, obturateurs de ronds de gant et de sac, bagues d'enceintes et éléments interchangeables à distance

Reference number
ISO 11933-1:1997(E)

Contents

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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.

International Standard ISO 11933-1 was prepared by Technical Committee ISO/TC 85, *Nuclear energy*, Subcommittee SC 2, *Radiation protection*.

ISO 11933 consists of the following parts, under the general title *Components for containment enclosures*

— *Part 1: Glove/bag ports, bungs for glove/bag ports, enclosure rings and interchangeable units*

— *Part 2: Gloves, welded bags, gaiters for remote-handling tongs and manipulators*

— *Part 3: Transfer systems such as plain doors, double doors for leaktight transfer, airlock chambers, leaktight connections for waste drums*

Introduction

A great number of leaktight mechanical components for containment enclosures are presently offered on the market. These components:

- may have different geometric dimensions;
- may require holes of different diameters for attachment on the containment enclosure wall;
- may be attached to this wall by different methods;
- may use different mounting systems for their associated leaktight elements, such as gloves, welded bags, bungs, transfer systems.

These components are generally not mutually compatible, but nevertheless often have the same performance level; therefore it was not possible to select only one system as the International Standard.

As a consequence, the aim of this part of ISO 11933 is to present general principles of design and use, and to fully describe the different existing systems in order to:

- avoid new parallel systems based on identical principles and differing only in details or geometric dimensions;
- make possible interchangeability between existing equipment;
- demonstrate consistency among the various parts of the same system such as the basic elements (described in ISO 11933-1), the elements associated with leaktightness (described in ISO 11933-2), or the transfer systems (described in ISO 11933-3).

Components for containment enclosures —

Part 1: Glove/bag ports, bungs for glove/bag ports,enclosure rings and interchangeable units

1 Scope

This part of ISO 11933 specifies the designation and characteristics of the various components for containment enclosures which are fixed to the containment enclosure wall or which can be used in conjunction with the lead shielding units described in ISO 7212 and ISO 9404 and used in the construction of containment enclosures for protection against ionizing radiation.

These components may also be used alone, without any shielded enclosure. In addition, some similar units are included which can be used with or without shielding, but not in conjunction with units given in ISO 7212 and ISO 9404.

The units covered by this part of ISO 11933 are:

- glove/bag ports,
- bungs for glove/bag ports,
- enclosure rings,
- interchangeable units which are either leaktight ejectable units (support rings for gloves, welded bags, gaiters for remote-handling tongs and for manipulators, circular windows) or rigid plugs or securing units (securing rings),

Independent systems which do not use the same support ring are described separately in this part of ISO 11933 (support rings for manipulator and tong gaiters and for circular windows and rigid plugs).

The associated leaktight components (gloves, welded bags, gaiters for remote-handling tongs and for manipulators) are described in ISO 11933-2.

Transfer systems (plain doors, double doors, airlock chambers, leaktight connections for waste drums) are dealt with in ISO 11933-3.

Accessories for the ventilation of containment enclosures such as filters and traps, pressure regulators and safety valves, are dealt with in ISO 11933-4.

Penetrations for electrical and fluid circuits will be described in ISO 11933-5.

The elements constituting the framework of containment enclosures (metallic walls, framework, transparent panels) are dealt with in ISO 10648-1.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11933. 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 11933 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 7212:1986, *Enclosures for protection against ionizing radiation - Lead shielding units for 50 mm and 100 mm thick walls.*

ISO 9404-1:1991, *Enclosures for protection against ionizing radiation – Lead shielding units for 150 mm, 200 mm and 250 mm thick walls – Part 1: Chevron units of 150 mm and 200 mm thickness.*

ISO 10648-1:1996, *Containment enclosures - Part 1: Design principles.*

ISO 10648-2:1994, *Containment enclosures - Part 2: Classification according to tightness and associated checking methods.*

ISO 11933-2: –[1] *Components for containment enclosures - Part 2: Gloves, welded bags, gaiters for remote-handling tongs and for manipulators.*

ISO 11933-3: –[1] *Components for containment enclosures - Part 3: Transfer systems such as plain doors, double doors for leaktight transfer, airlock chambers, leaktight connections for waste drums.*

3 Definitions

For the purposes of this part of ISO 11933, the following definitions apply:

3.1 glove port or bag port: Plastic or metal profiled flange with grooves, fitted on containment enclosures or glove box walls using threaded components or by welding or bonding. They can receive directly a glove or another flexible component terminating with a bead or a snap ring of the same diameter.

Bag ports can be of larger diameter to allow transfer of larger components.

3.2 enclosure ring: Plastic or metal profiled ring which is mounted on containment enclosures or glove box walls using threaded components or by welding or bonding. The ring is used to allow fitting of interchangeable leaktight units mounted on a support ring (e.g. gloves, rigid plugs).

Interchangeability of these ejectable units is achieved by using an ejecting device of appropriate dimensions and operating mode. This device allows ejection of each worn leaktight component by pushing it into the enclosure and replacing it with a new component of the same diameter, without breaking the leaktightness.

3.3 support ring: Plastic or metallic interchangeable unit with grooves, which is mounted in an enclosure ring, and equipped with a glove or other plastic component, terminated with a snap ring, a bead or a lip seal of same diameter.

3.4 interchangeable elements: Parts of components of containment enclosures which may be exchanged with one another or replaced

- either manually by, mounting, dismounting or substitution operations (for example, threaded enclosure rings which may be replaced by threaded glove ports of the same diameter);

- or by a remote-controlled operation and/or using an automatic or manual ejecting device (for example, support rings equipped with gloves, welded bags, tong or manipulator gaiters, bungs or rigid plugs).

These elements are designed in such a way that their replacement of one by another

- does not reduce the containment enclosure tightness;

- and does not need any modification or replacement of the containment enclosure wall.

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1) To be published.