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AMENDMENT 1
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Nuclear facilities — Ventilation penetrations for shielded enclosures

AMENDMENT 1

*Installations nucléaires — Traversées de ventilation pour enceintes
blindées*

AMENDEMENT 1

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ISO 15080:2001/Amd 1:2019

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CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
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This document was prepared by ISO/TC 85, *Nuclear energy, nuclear technologies, and radiological protection*, Subcommittee SC 2, *Radiological protection*.

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Clause 2

Delete ISO 3452, *Non-destructive testing — Penetrant inspection — General principles*.

4.2, third and fourth paragraph

Replace the paragraphs with the following:

“Where the ventilation duct penetrates the wall in a zigzag, the duct-mounting appliance shall be enclosed in a material providing the same level of protection as the shielding wall. The material should be at least three times denser than the wall, if it is made in concrete with an usual density (for example between 2,2 t/m³ and 2,4 t/m³) (see Figure 2).

Annex C gives other examples of conventional duct penetrations for shielded enclosures.

These rules are applied to cast-iron screws for protection against gamma radiation with an 0,5 MeV < energy < 2,5 MeV (1 MeV = 1,6 10⁻¹³ J) used for the reconstitution of the shielding properties of the walls.

All these calculations have to be verified by radiological protection calculation, in order to validate the effectiveness of the reconstitution of the shielding properties, in particular to cover other energies or concrete density.”

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4.3.1, second paragraph

Replace the paragraph with the following:

“The helixes are made from a metallic material (examples for the helix unit can be the use of a lamellar graphite cast iron or spheroidal graphite cast iron as a result of a preliminary material study, stainless steel,...).

NOTE The consideration of this paragraph doesn't apply for neutron shielding.”

4.3.2

Replace the text with the following:

“Because of their helical shape, these protection helixes can ensure the following:

- a) shielding continuity with an attenuation against gamma radiation equivalent to that of the wall to be penetrated;
- b) the passage of air or gas through the wall with the creation of a pressure drop as low as possible.

The design of the additional protection in order to reconstitute protection equivalent to straight through passages shall be conducted on a case-by-case basis.”

4.3.3, third paragraph

Replace the paragraph with the following:

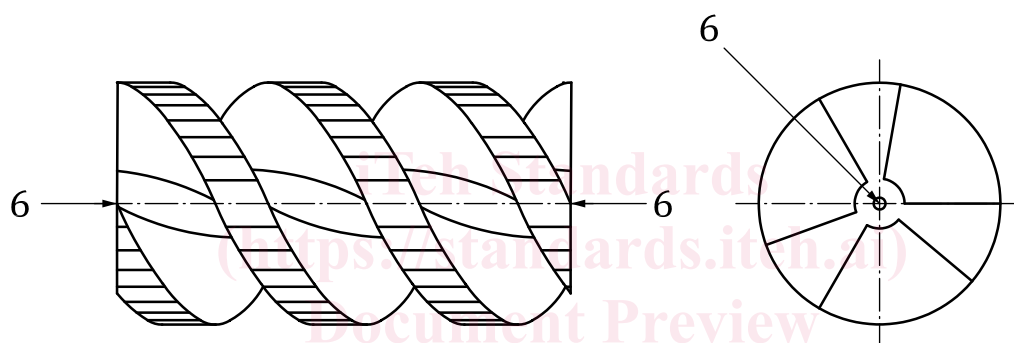
“The helix is fastened to the housing with pins or by mechanical means (threaded fastenings). The number and the size of the pins are determined according to load calculations (seismic event, fire, overpressure ...).”

Figure 4

After subtitle a), add the following text:

“In order to avoid deposit of aerosol contamination, the handling screw hole should be filled”.

Subfigure b), replace the figure and the key with the following.



“Key

- 1 pin
- 2 housing
- 3 helix
- 4 flange
- 5 blind nuts
- 6 handling screws”

4.3.4.2, second bullet list

Replace the text with the following:

“whose average density is usually between of 2,2 t/m³ and 2,4 t/m³ so that the helix length is greater than the wall thickness.”

A.1.1

Replace the text with the following:

“For the essential factors such as mechanical resistance, machining, homogeneity and radiation attenuation behaviour, the use of cast iron with lamellar graphite of grade EN-GJL-200 according to EN 1561 (Europe) or HT200 (China) or FC200 (Japan) or grade 30B for ASTM A-48 (USA) is recommended for the helix unit.”