
INTERNATIONAL STANDARD



5036

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Continuous mechanical handling equipment for loose bulk materials – Vertical screw conveyors – Safety code

Engins de manutention continue pour produits en vrac – Élévateurs à hélice – Code de sécurité

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5036 was developed by Technical Committee ISO/TC 101, *Continuous mechanical handling equipment*, and was circulated to the member bodies in February 1976.

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It has been approved by the member bodies of the following countries :

Australia	Germany	Spain
Austria	India	Sweden
Belgium	Japan	Turkey
Bulgaria	Mexico	United Kingdom
Chile	Netherlands	U.S.S.R.
Czechoslovakia	Poland	Yugoslavia
Finland	Romania	
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The member body of the following country expressed disapproval of the document on technical grounds :

U.S.A.

Continuous mechanical handling equipment for loose bulk materials – Vertical screw conveyors – Safety code

1 SCOPE

This International Standard specifies, in addition to the general safety rules set out in ISO 1819, the special safety rules for the following continuous mechanical handling equipment for loose bulk materials : vertical screw conveyors.¹⁾

2 FIELD OF APPLICATION

The safety rules laid down in this International Standard apply regardless of the use for which the equipment is intended. These safety rules limit the supplier's responsibility to continuous mechanical handling equipment properly so called, excluding the structures to which such equipment is fixed.

3 REFERENCES

ISO 1819, *Continuous mechanical handling equipment – Safety code – General rules.*²⁾

ISO 2148, *Continuous handling equipment – Nomenclature.*

4 SPECIAL SAFETY RULES

The construction and operation of vertical screw conveyors shall meet

- the legal and local requirements relating to safety in general (see appendix Z of ISO 1819);
- the principles laid down in clause 1 of ISO 1819;
- the general rules laid down in clause 2 of ISO 1819;
- the following special rules.

4.1 In the construction stage (design and manufacture)

4.1.1 Upper openings of troughed appliances shall be guarded, apart from feed and discharge areas.

4.1.2 The opening of covers, inspection doors and the covers of such protective devices as are liable to expose the screw elements while the machinery is in operation shall be prevented by means of locking.

Should the user notify the constructor in writing that he intends to allow the opening of inspection doors or such protective devices as are liable to expose the screw elements while the machinery is in operation, fixed guards must be provided to prevent any contact with the screw elements.

For example, a screen with openings not exceeding 40 mm × 40 mm should be fitted at a minimum distance of 100 mm from the screw edge.

4.1.3 Inlet and outlet apertures shall be so designed as to prevent free access to moving parts. Otherwise, provision shall be made for suitable protective guards.

4.1.4 Lubrication of intermediate screw bearings shall be possible without removing the trough or cover of conveyors.

4.1.5 For cleaning purposes, removable protective panels shall be fitted on the base of conveyors.

4.1.6 Should a screw conveyor be required to convey dangerous or harmful products, the user shall notify the constructor and specify what special safety features are needed in the design of the equipment.

For example where the possibility of fire or explosion exists, the pitch of the intermediate bearings shall ensure that the screw cannot touch the inside of the casing.

4.2 During the installation stage (layout, erection and entry into service)

4.2.1 Screw conveyors shall be fed regularly by appropriately designed devices.

4.2.2 If the vertical screw conveyor is equipped with a hand-operated variable-speed drive, and if the controls are more than 1,5 m above operating level, a fixed means of access shall be provided.

1) See 2.14.14 of ISO 2148.

2) At present at the stage of draft. (Revision of ISO/R 1819-1970.)

4.3 During the utilization stage (operation and maintenance)

4.3.1 In compliance with the existing regulations and according to the requirements stated in rule 4.1.2, the personnel shall not be allowed to clean the inside of the trough or carry out any other inspection therein without first having stopped the screw and rendered the starting devices inoperative.

4.3.2 However, should the screw conveyor fail to start

again normally due to blockage, it shall be possible to reverse it.

4.3.3 Free access to the unprotected rotating part of a screw shall be forbidden to all persons other than the supervisory and maintenance personnel. No action shall be taken by the latter without having first stopped the screw and taken all precautions to prevent it being prematurely started up.

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