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# INTERNATIONAL STANDARD **ISO** 2390



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## Continuous mechanical handling equipment for loose bulk materials – Apron conveyors – Safety code

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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 2390 was drawn up by Technical Committee ISO/TC 101, *Continuous mechanical handling equipment*.

It was approved in November 1971 by the Member Bodies of the following countries:

Belgium	Ireland	South Africa, Rep. of
Canada	Italy	Sweden
Czechoslovakia	Japan	Thailand
Egypt, Arab Rep. of	Korea, Rep. of	Turkey
Finland	Netherlands	United Kingdom
France	New Zealand	U.S.A.
Germany	Poland	U.S.S.R.
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No Member Body expressed disapproval of the document.

# Continuous mechanical handling equipment for loose bulk materials – Apron conveyors – Safety code

## 1 SCOPE

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

## 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 proper, excluding the structures to which such equipment is affixed.

## 3 REFERENCE

ISO/R 1819, *Continuous mechanical handling equipment – Safety code – General rules*.

## 4 SPECIAL SAFETY RULES

The construction and operation for apron conveyors shall meet

- the legal and local requirements relating to safety in general<sup>1)</sup>,
- the principles laid down in section 1 of ISO/R 1819,
- the general rules laid down in section 2 of ISO/R 1819,
- the following special rules:

### 4.1 In the construction stage (design and manufacture)

**4.1.1** Guiding and centering devices for the materials shall be provided, if necessary, at the feed points.

**4.1.2** In addition to rule 2.1.7 of ISO/R 1819, the chain

1) See Appendix Z of ISO/R 1819.

tracks shall be guarded in areas which are normally accessible to personnel.

**4.1.3** In addition to rules 2.1.2 and 2.1.3 of ISO/R 1819 relating to inclined conveyors, a safety device shall be provided (longitudinal rods, harrows with articulated bars, etc.) if occasional slipping of the materials can be normally foreseen (slipping caused, for instance, by a stoppage under load or irregular loading).

**4.1.4** In addition to rule 2.1.4 of ISO/R 1819 relating to inclined conveyors, the conveyor chains shall be confined in order to prevent them from rising in the event of the chains breaking or the conveyor running backwards.

**4.1.5** When the design of the apron conveyors may produce effects of squeezing and shearing at zones of bends in the chain, adequate guards shall be provided.

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**4.2 During the installation stage** (design, commissioning and entry into service)

**4.2.1** The apron conveyors shall be erected and aligned with care. This applies not only to the framework, but also to the mechanical parts and the apron.

**4.2.2** Apron conveyors shall be fed regularly, preferably by feeder or in default by a carefully designed feed chute.

**4.2.3** The opening of feed chutes shall be guarded if normally accessible to personnel, particularly to prevent them falling in. It is recommended that inspection doors be provided on large chutes.

**4.2.4** In pursuance of the requirements laid down in rule 2.2.11 of ISO/R 1819, suitable protection shall also be provided against dropping of small or fine material adhering to the return side of the apron.

### 4.3 During the utilisation stage (operating and maintenance)

The manual cleaning of sprockets, chains, or other parts shall be undertaken only when the conveyor is at rest, and after rendering all starting devices inoperative.

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