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

Continuous mechanical handling equipment — Chain conveyors with bearing devices or load carriers — Examples of protection against injuries by load carriers

Engins de manutention continue — Convoyeurs à chaînes avec dispositifs porteurs ou systèmes d'entraînement — Exemples des mesures de protection contre les accidents corporels provoqués par les poussoirs ou systèmes d'entraînement

Technical Report 5047 was drawn up by sub-committee 2 *safety* of ISO/TC 101 *Continuous mechanical handling equipment*, and approved by the majority of its members.

The aim of this technical report is to give examples for safety at load carriers of chain conveyors.

It incorporates sketches which show in principle how sufficient safety can be achieved without excluding other methods which give the same safety factor. As this a subject, that cannot be considered as suitable for an International Standard, it was decided to publish the document as a Technical Report.

1 Scope and field of application

This Technical Report gives examples of the various kinds of hazards connected with chain conveyors with supporting rods or rollers, push rods, single load carriers etc, suitable clearances as well as other safety measures and devices.

This Technical Report explains the various safety standardsx for loose materials and unit loads. It incorporates principal sketches which show how sufficient safety can be reached without excluding other methods, which give the same safety factor. The remarks apply also to jointed apron conveyors especially in respect of external pressure edges, where crushing can take place.

2 References

ISO 1819, *Continuous mechanical handling equipment — Safety code — General rules.*

ISO 2148, *Continuous mechanical handling equipment — Nomenclature.*

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3 Danger points

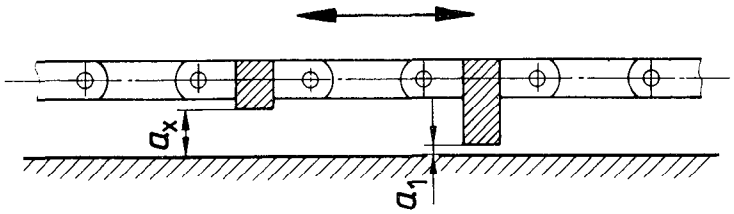
3.1 Dangers at load carriers

Dangers of crushing and shearing on chain conveyors with push rods, load carriers, supporting arms etc arise when the load carriers are fitted at too small a distance from the sliding surface or when there are shear traps, so that parts of the body can get into danger points creating a hazard of shearing off, crushing or bones fractures.

3.1.1 Trapping on sliding surfaces

If the distance (a_x) between the load carriers and the sliding surface is too small, there arises the danger of trapping (hands, feet or head), see 4.1.

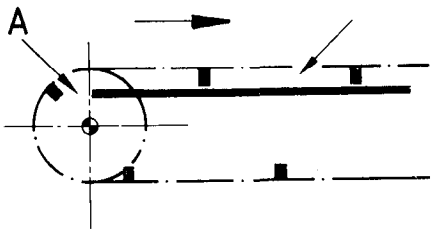
In the case of square or rectangular rods and continuous sliding surfaces there is no danger when a is less than 5 mm.



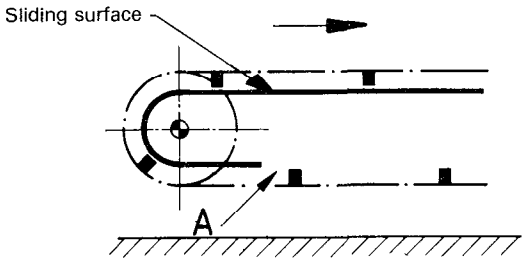
3.1.2 Shearing trap at end of sliding surface

If there are breaks in the sliding surface there are shearing traps when the load carriers run on to the sliding surface (A).

The same applies when the sliding surface has openings in it (for example intermediate discharge point).



a)



b)

3.1.3 Dangers at inside fixtures

If supporting rods and rollers are fitted too near to the diagonal trussing (A) or support rollers (B) or distance plates (C), there is the danger of crushing or shearing. The hands are mainly endangered.