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Continuous mechanical handling equipment for loose bulk materials – Hydraulic 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 2392 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	India	Poland
Canada	Ireland	South Africa, Rep. of
Czechoslovakia	Italy	Sweden
Egypt, Arab Rep. of	Japan	Thailand
Finland	Korea, Rep. of	Turkey
France	Netherlands	United Kingdom
Germany	New Zealand	U.S.S.R.

No Member Body expressed disapproval of the document.

Continuous mechanical handling equipment for loose bulk materials – Hydraulic 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 : hydraulic conveyors for solid products, in closed conduits and under pressure.

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 hydraulic conveyors shall meet

- the legal and local requirements relating to safety in general¹⁾,
- 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 During the installation stage (design, commissioning and entry into service)

4.1.1 The use of internal combustion engines to drive pumping units shall entail the systematic application of the special safety rules for this type of equipment (removal of exhaust gases, fire hazards, etc.).

4.1.2 When the pumping units have been fed with materials through cistern-hoppers in series, if any collecting devices for overflows are provided, they shall drain off

outside the points normally accessible to operating personnel.

4.1.3 Pipe installations for hydraulic conveying of materials (pumping unit and pipe system) shall be fitted with appropriate protective devices against over- and under-pressures which might arise during operation.

4.1.4 Protection shall be provided against any hazards to personnel as a result of any discharge from safety valves.

4.1.5 Drain devices, vents and valves shall be fitted with shields. Access to them shall be prohibited, as far as possible, while the line is under pressure.

4.2 During the utilisation stage (operation and maintenance)

4.2.1 The operation and maintenance instructions in 2.3 of ISO/R 1819 must be complied with, particularly rules 2.3.4 and 2.3.6.

4.2.2 The control and regulation appliances shall be kept in perfect operating condition.

4.2.3 Where maintenance can be undertaken while an appliance is operating (re-screwing down of stuffing-boxes of the material pumps in particular), the maintenance personnel shall be expressly warned of the existence of the special points indicating the flow of the material (drop-shield discs for instance).

4.2.4 Legible notices to prohibit the operation of the valves when the system is in operation shall be affixed adjacent to discharge valves provided at low points.

The application of this rule shall be specially observed in installations in pits or underground.

4.2.5 It is recommended that the wear and tear condition of the conveying piping be checked as often as necessary according to the abrasive character of the materials conveyed.

A special watch shall be kept for wear which can take place at bends and other special conveying components, whether metallic or not.

1) See Appendix Z of ISO/R 1819.