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Safety requirements for truck mixers

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Health, Labour and Welfare and the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

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Safety requirements for truck mixers

Introduction

This Japanese Industrial Standard is a type C standard (individual machine safety standard) defined in the foreword of **JIS B 9700-1**.

1 Scope

This Standard specifies the safety requirements of the truck mixers as defined in **3.1**. A typical model of the machine to which this Standard applies is shown in Annex A for reference.

This Standard, when truck mixers are used under the condition intended and foreseen by the manufacturer, considers all of the significant hazards directly related to them (see Annex B) and indicates concretely the technical measures for suitably removing or reducing the risks possibly generated from them.

For the range, for which this Standard is not applicable, of the concrete pumps, belt conveyers or other special equipments that are sometimes combined with the upper structure of truck mixers, the respective relative standards shall be applied.

NOTE : The truck mixers shall conform to the laws and regulations related to road traffic stipulated by the nation and the local governments, as well as to the requirements of this Standard.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS A 8305 *Method for the measurement of airborne noise emitted by construction equipment intended for outdoor use*

JIS A 8312 *Earth-moving machinery—Safety signs and hazard pictorials—General principles*

JIS A 8316 *Earth-moving machinery—Electromagnetic compatibility*

JIS A 8317-1 *Earth-moving machinery—Determination of sound power level—Dynamic test conditions*

JIS A 8334 *Earth-moving machinery—Operator's manual—Content and format*

JIS A 8340-1 *Earth-moving machinery—Safety—Part 1: General requirements*

JIS B 8361 *Hydraulic fluid power—General rules relating to systems*

JIS B 9700-1 *Safety of machinery—Basic concepts, general principles for design—Part 1: Basic terminology, methodology*

JIS B 9700-2 *Safety of machinery—Basic concepts, general principles for design—Part 2: Technical principles*

JIS B 9716 *Safety of machinery—Guards—General requirements for the design and construction of fixed and movable guards*

JIS B 9960-1 *Safety of machinery—Electrical equipment of machines—Part 1: General requirements*

JIS Z 8737-1 *Acoustics—Noise emitted by machinery and equipment—Measurement of emission sound pressure levels at a work station and at other specified positions—Engineering method in an essentially free field over a reflecting plane*

3 Terms and definitions

For the purposes of this Standard, the following terms and definitions apply.

3.1 truck mixer

a vehicle with a mixer equipment mounted on the truck chassis or the semitrailer, mainly intended for transporting the fresh concrete manufactured in a ready-mixed concrete factory or for receiving the measured material from the ready-mixed concrete factory and then transporting it while mixing (see figure A.1 and figure A.2)

NOTE : A truck mixer can sometimes transport not only mortar and similar building materials but also other liquids and loose bulk materials while mixing them.

3.2 upper structure

a structure consisting of equipments such as rotary drum, drum counter, driving gear, hopper, chute, washing device, operating device, etc. including the frame, which are loaded on the truck chassis frame

3.3 operating device

a device in which a machinery to operate the driving and stoppage of drum and a machinery for supply and stoppage of washing water are arranged

NOTE : It is usually provided at the side surface of the rear part of the vehicle, and operated by a worker standing on the ground.

3.4 drum capacity

the internal volume of drum

3.5 maximum mixing volume

the maximum volume to be mixed recommended by the manufacturer at which the mixer can exhibit the best performance in agitation, mixing, etc. of fresh concrete

3.6 drum hole

a hole provided at the side surface of the drum for carrying out the exclusion of chipped concrete or the emergency discharge of concrete

NOTE : Entrance and exit of persons shall generally be through the hopper.

4 List of significant hazards

The list of significant hazards related to truck mixers (hereafter, referred to as the “machine”.) is given in Annex B.

5 Safety requirements and safety measures

5.1 General

The machine shall conform to the safety requirements and the safety measures of this Standard. Furthermore, when a new hazard not included in the list of significant hazards in Annex B is found to be present in the machine as the result of risk assessment, it shall be designed according to **JIS B 9700-1** and **JIS B 9700-2**.

NOTE : A significant hazard is a hazard specified as directly relevant in the risk assessment (see **JIS B 9702**) conducted by the designer and the manufacturer, of which the associated risks require concrete action in order to be removed or reduced.

5.2 Strength

The respective structures of the machine and their mutual connections and fixed parts shall have sufficient strength to resist all of the loads exerted on the machine during travelling and operating.

5.3 Drum

5.3.1 Clearance between drum and frames

The point of contact between the drum roller ring and the drum roller and the rotation part to drum roller shall be protected by covers on three side surfaces for preventing the danger of crush, entrapment or the like, and the clearance between the cover and the pressured surface of the drum roller ring shall be 8 mm or under (see figure 1 and **JIS B 9711**).

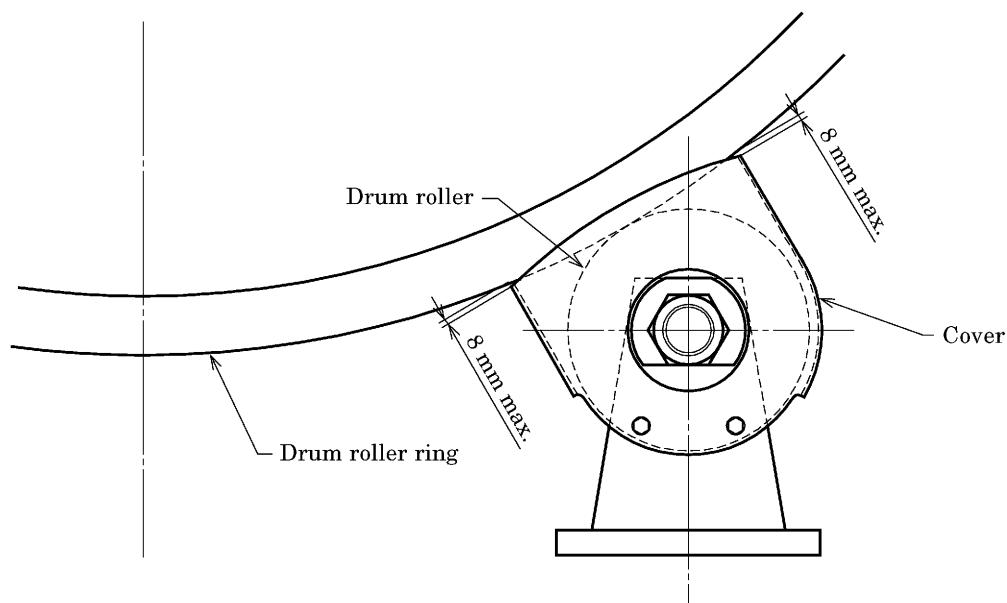


Figure 1 Cover of drum roller

The minimum clearance between the rotating drum and chassis frame or drum counter shall be not less than 40 mm under any operation conditions for preventing the hand entrapment of a person standing on the ground.