ISO 21873-2:2019 (E)

Building construction machinery and equipment — Mobile crushers — Part 2: Safety requirements and verification

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 Safety requirements and/or protective/risk reduction measures

4.1 General
4.2 Access
4.3 Operator's station
4.3.1 General
4.3.2 Moving parts
4.3.3 Engine exhaust
4.3.4 Sharp edges
4.3.5 Pipes and hoses
4.3.6 Construction
4.4 Lighting
4.5 Operator's controls and indicators
4.5.1 General
4.5.2 Emergency stop
4.5.3 Starting systems
4.5.4 Inadvertent activation
4.5.5 Uncontrolled motion
4.5.6 Remote control
4.5.7 Control panels, instrument and symbols
4.5.7.1 Control panels
4.5.7.2 Operating instrumentation
4.5.7.3 Symbols
4.6 Steering system
4.7 Brake systems
4.7.1 General
4.7.2 Parking brakes
4.8 Feed hopper and feed device
4.8.1 Guarding requirements
4.8.2 Safety information for the operator's manual
4.9 Crushing device (crusher)
4.9.1 Feed opening
4.9.1.1 Guarding requirements
4.9.1.2 Safety information for the operator's manual
4.9.2 Jaw-type crushing device (jaw-type crusher)
4.9.2.1 Guarding requirements
4.9.2.2 Inspection openings
4.9.2.3 Maintenance
4.9.3 Horizontal shaft impact (HSI) and vertical shaft impact (VSI) crushing device
4.9.3.1 Guarding requirements
4.9.3.2 Inspection doors and openings
4.9.3.3 Maintenance
4.9.4 Cone-type crushing device (cone-type crusher)
4.9.4.1 Guarding requirements

4.9.4.2 Inspection openings
4.9.4.3 Maintenance
4.9.5 Roll-type crushing device
4.9.5.1 Guarding requirements
4.9.5.2 Inspection openings
4.9.5.3 Maintenance
4.10 By-pass device
4.10.1 General
4.10.2 Inadvertent movement
4.10.3 Prevention of falling material
4.10.4 Hazard of trapping or entanglement
4.11 Magnetic separator
4.11.1 Magnetic hazard
4.11.2 Magnet discharge
4.12 Warning devices
4.13 Stability
4.14 Noise emission measurement
4.14.1 Noise reduction at source
4.14.2 Sound power level
4.14.3 Sound pressure level
4.15 Protective measures and devices
4.15.1 General
4.15.2 Hot parts
4.15.3 Moving parts
4.15.4 Guards
4.15.4.1 Fixed guards
4.15.4.2 Movable guards
4.15.5 Isolation of energy sources
4.15.6 Sharp edges and acute angles
4.15.7 Exhaust gases
4.16 Lifting and tie-down
4.16.1 Lifting for transport
4.16.2 Tie-down for transport
4.16.3 Lifting and tie-down for maintenance
4.17 Electromagnetic compatibility (EMC)
4.18 Electrical and electronic systems
4.18.1 General
4.18.2 Degrees of protection
4.18.3 Electrical connections
4.18.4 Over-current protective devices
4.18.5 Batteries
4.18.6 Battery disconnection
4.18.7 Electrical connectors for auxiliary starting aids
4.18.8 Electric sockets for lighting
4.19 Pressurized systems
4.19.1 General
4.19.2 Hydraulic lines
4.19.3 Hydraulic hoses
4.20 Fuel tanks, hydraulic tanks and pressure vessels
4.20.1 General
4.20.2 Filler openings
4.20.3 Fuel tanks
4.20.4 Hydraulic tanks
4.20.5 Air pressure vessels
4.21 Fire protection
4.21.1 Fire resistance
4.21.2 Fire extinguisher
4.22 Maintenance
4.22.1 General
4.22.2 Frequent maintenance
4.22.3 Support devices
4.22.4 Access to the engine compartment

5 Verification of safety requirements and/or protective/risk reduction measures

6 Information for use

6.1 Safety labels
6.2 Operator's manual
6.2.1 Content
6.2.2 Storage of manual
6.3 Marking

Annex A (informative) List of significant hazards

Annex B (informative) Conveyor guard recommendations

B.1 Nip points
B.2 Nip guard
B.3 Safeguarding for head pulley
B.4 Safeguarding for tail pulley
B.5 Safeguarding for troughed or flat carrier rollers
B.6 Safeguarding at return roller
B.7 Safeguarding between belt and fixed components

Annex C (informative) Guidelines for safely clearing blocked crushers

C.1 General
C.2 Terms and definitions
C.3 General warnings
C.4 Bridged crushers
C.4.1 General
C.4.2 Bridged at feed
C.4.2.1 Primary crushers (large feed size)
C.4.2.2 Secondary, tertiary, and subsequent crushers (smaller feed size)
C.4.3 Bridged at discharge
C.5 Stalled crushers

Page count: 36