ISO 23495:2021 (E)

Industrial furnaces and associated processing equipment — Safety requirements for steel converter and associated equipment

Contents

Foreword

Introduction

- 1 Scope
- 2 Normative references
- 3 Terms, definitions and abbreviated terms
- 4 Significant hazards and risk assessment
- 5 Safety requirements and/or measures
 - 5.1 General
 - 5.1.1 Introduction
 - 5.1.2 Planning phase
 - 5.1.3 Safety layout
 - 5.1.4 Safety devices and protective measures
 - 5.1.4.1 Safety devices
 - 5.1.4.2 Guards
 - 5.1.4.3 Guard-rails
 - 5.1.4.4 Doghouse
 - 5.1.4.5 Emergency pit
 - 5.1.4.6 Hot metal ladle, steel ladle and slag pot
 - 5.1.5 Hydraulic, pneumatic, gas, cooling and lubrication systems
 - 5.1.6 Fluid systems carrying or containing fluids
 - 5.1.7 Fluids not to be discharged to drains
 - 5.1.8 Personal protective equipment
 - 5.1.9 Warning devices and safety signs
 - 5.1.9.1 Visual and audible danger signals
 - 5.1.9.2 Safety signs
 - 5.1.10 Access
 - 5.1.11 Escape routes
 - 5.1.12 Electrical equipment
 - 5.1.13 Safety related control system
 - 5.1.14 Surface temperatures and heat radiation
 - 5.1.15 Ergonomics
 - 5.1.16 Fire protection
 - 5.1.17 Operating stations for the steel converter
 - 5.1.17.1 General
 - 5.1.17.2 Converter control room
 - 5.1.17.3 Local control stand
 - 5.1.18 Portable wired/wireless control box
 - 5.1.19 Loss of energy
 - 5.1.20 Areas with special hazards
 - 5.1.21 Cooling water systems
 - 5.1.22 Noise
 - 5.1.22.1 General
 - 5.1.22.2 Noise sources
 - 5.1.22.3 Noise reduction at source by design
 - 5.1.22.4 Noise reduction by protective measures
 - 5.1.22.5 Noise reduction by information
 - 5.1.23 Vibrations

- 5.1.24 Linked Equipment
- 5.1.25 Hold-to-run control device and enabling button
- 5.1.26 Mechanical restraint devices
- 5.1.27 Safety related software and parameters
- 5.2 List of significant hazards, hazardous situations, safety requirements and/or measures
- Verification of the safety requirements and/or protective/risk reduction measures
 - 6.1 General

6

- 6.2 Required verification D
- 6.3 Required verification V, M and T
- 7 Information for use
 - 7.1 General
 - 7.2 Warning devices and safety signs
 - 7.3 Accompanying documents
 - 7.3.1 Instruction handbook
 - 7.3.2 Machine/equipment declaration
 - 7.3.3 Instruction for transport, setting up/installation
 - 7.3.4 Instruction about assembly, commissioning and dismantling
 - 7.3.5 Operation instructions concerning the equipment
 - 7.3.5.1 General
 - 7.3.5.2 Specific instructions in the operating manual
 - 7.3.6 Maintenance instructions
 - 7.4 Minimum marking
 - 7.5 Training of personnel
- Annex A (normative) Safety requirements for electrical equipment and for safety related control systems
 - A.1 General
 - A.2 Special requirements for safety related control systems
 - A.3 Special requirements for shut-down equipment
 - A.3.1 Stop functions and emergency stop functions
 - A.3.2 Emergency stop
 - A.3.3 Emergency stop assigned to areas
 - A.3.4 Emergency stop functions
 - A.3.5 Emergency off
- Annex B (normative) Steel converter and its associated equipment for the oxygen steelmaking process
- Annex C (normative) Noise test code
 - C.1 Introduction
 - C.2 Determination of sound power level
 - C.3 Determination of emission sound pressure levels at work stations
 - C.4 Measurement uncertainties
 - C.5 Operating conditions
 - C.6 Information to be recorded and reported
 - C.7 Declaration and verification of noise emission values

Page count: 45