

ISO 18758-2:2018 (E)

Mining and earth-moving machinery — Rock drill rigs and rock reinforcement rigs — Part 2: Safety requirements

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Safety requirements
4.1	General requirements
4.1.1	General
4.1.2	Ergonomics
4.1.3	Hot and cold surfaces and sharp edges
4.1.4	Hoses, pipes and fittings under pressure
4.1.5	Handling of the rig and its parts
4.1.6	Access to operating positions and servicing points
4.1.7	Isolation of external electrical energy sources
4.1.8	Prevention of unexpected start-up
4.2	Driving, tramping and operating position
4.2.1	General
4.2.2	Operator's position
4.2.2.1	Operator cab (operator enclosure)
4.2.2.2	Operator canopy
4.2.2.3	Elevating operator station
4.2.2.4	Tilting operator cab
4.2.2.5	Tramming stand
4.2.2.6	Remote controlled and autonomous rigs
4.2.2.7	Boom-mounted working platforms for underground use
4.2.2.8	Temporary roof support
4.2.3	Visibility
4.2.4	Operator protective structures
4.2.4.1	Selection criteria
4.2.4.2	Static calculation for the operator protective structure
4.3	Controls, functions and systems
4.3.1	General
4.3.2	Starting
4.3.3	Stopping – Normal stopping
4.3.4	Failure of the power supply
4.4	Control devices
4.4.1	General
4.4.2	Control system of remote controlled and automated rigs
4.4.3	Emergency stop and safety devices
4.4.3.1	Emergency stops
4.4.3.2	Safety device for stopping of rotation and feed
4.4.4	Operating instrumentation
4.5	Stability
4.6	Steering
4.7	Carrier brakes
4.7.1	General
4.7.2	General requirements for wheel-mounted rigs
4.7.3	Service braking system for wheel-mounted rigs

- 4.7.4 Secondary braking system for wheel-mounted rigs
 - 4.7.5 Parking braking system for wheel-mounted rigs
 - 4.7.6 Braking systems for crawler-mounted rigs
 - 4.7.7 Braking systems for "skid steer" wheel-mounted rigs
 - 4.8 Tyres and rims
 - 4.9 Protection against moving parts
 - 4.9.1 General
 - 4.9.2 Moving parts involved in the working process
 - 4.9.2.1 General
 - 4.9.2.2 Rigs using threaded drill string connections
 - 4.9.2.3 Manual rod handling
 - 4.9.2.4 Drilling consumables handling systems
 - 4.9.2.5 Two-person operation
 - 4.9.2.6 Rotating parts hazard mitigation
 - 4.10 Electrical installations
 - 4.10.1 Electric power installation
 - 4.10.2 Electromagnetic compatibility (EMC)
 - 4.10.3 Battery installation
 - 4.11 Machines powered by diesel engine
 - 4.12 Fuel systems
 - 4.12.1 Fuel tanks
 - 4.12.2 Fuel tank filler inlet
 - 4.12.3 Fuel tank vent system
 - 4.13 Hydraulic system
 - 4.13.1 General
 - 4.13.2 Load holding cylinders
 - 4.14 Pneumatic installations
 - 4.15 Lighting
 - 4.15.1 Working light
 - 4.15.2 Illumination when tramming
 - 4.15.3 Internal operator cab or operator canopy lighting and access lighting
 - 4.16 Fire protection
 - 4.16.1 General
 - 4.16.2 Operator cab interior upholstery
 - 4.16.3 Portable fire extinguishers
 - 4.16.4 Fire suppression systems
 - 4.16.5 Engine shutdown
 - 4.16.6 Single conductor cables
 - 4.16.7 Monitoring device
 - 4.17 Noise and vibration
 - 4.17.1 General
 - 4.17.2 Noise
 - 4.17.3 Vibration
 - 4.18 Dust suppression
 - 4.19 Winches and ropes
 - 4.19.1 Winches, ropes and sheaves for lifting and feed
 - 4.19.2 Winches for operating a rig on slopes
 - 4.20 Roller and leaf chains
 - 4.21 Masts and feed beams
 - 4.22 Maintenance
- 5 Verification of safety requirements
- 5.1 General
 - 5.2 Brake verification
 - 5.2.1 General
 - 5.2.2 What to measure
 - 5.2.3 Test conditions
 - 5.2.4 Performance of the tests
 - 5.2.4.1 Dynamic tests for wheel-mounted rigs
 - 5.2.4.1.1 Service brake test
 - 5.2.4.1.2 Heat fade test
 - 5.2.4.1.3 Secondary brake test
 - 5.2.4.2 Parking brake test
 - 5.2.5 Test report

6 Information for use

- 6.1 General**
- 6.2 Nature of information for use**
- 6.3 Signals and warning devices**
- 6.4 System for the measurement of inclination as regards stability**
- 6.5 Safety signs and labels**
- 6.6 Marking**
 - 6.6.1 Rig data plate**
 - 6.6.2 Data plate of boom-mounted work platform**
 - 6.6.3 Symbols for operator controls and other displays**
- 6.7 Instruction handbooks for rigs**
 - 6.7.1 General requirements on instruction handbooks**
 - 6.7.2 Types of instructions**
 - 6.7.3 Identification of instruction handbook**
 - 6.7.4 Content of the operator's instruction handbook**
 - 6.7.4.1 Information about the rig**
 - 6.7.4.2 Instructions for the use of the rig**
 - 6.7.4.3 Non intended use**
 - 6.7.4.4 Rigs for underground operation**
 - 6.7.4.5 Instructions for two-person operation**
 - 6.7.4.6 Information for emergency situations**
 - 6.7.5 Transport instructions**
 - 6.7.6 Assembly instructions**
 - 6.7.7 Maintenance instructions**
 - 6.7.8 Spare parts list**
 - 6.7.9 Use of terms related to safety**
 - 6.7.10 Format of operator's manual**
 - 6.7.11 Supplier's declaration of conformity**
 - 6.8 Training manual**

Annex A (normative) Temporary roof support (TRS) systems

Annex B (normative) Stability

- B.1 General stability criteria**
- B.2 Definitions for stability calculations**
- B.3 Verification of stability**
 - B.3.1 General**
 - B.3.2 Centre of gravity**
 - B.3.3 Dynamic forces**
 - B.3.4 Wind force**
 - B.3.5 Other working forces**
 - B.3.6 Operating conditions**
 - B.3.7 System for the measurement of inclination as regards stability**
 - B.3.8 Stability of truck and trailer-mounted rigs**

Annex C (normative) Noise test code

- C.1 General**
- C.2 Operation of the rigs during noise and vibration tests**
 - C.2.1 General**
 - C.2.2 Multiple power units**
 - C.2.3 Fan speed**
 - C.2.4 Different types of rigs**
 - C.2.4.1 General**
 - C.2.4.2 Non-percussive mobile rigs (rotary drilling and raise boring)**
 - C.2.4.3 Percussive mobile rigs (percussive and rotary-percussive)**
 - C.3 Determination of the sound power level**
 - C.3.1 Basic noise emission standards**
 - C.3.2 Determination according to ISO 3744:2010**
 - C.4 Measurement of emission sound pressure level at the operator's position**
 - C.4.1 General**
 - C.4.2 Performance of test at a fixed operator's position**
 - C.4.3 Performance of test for operator's position and for remote-controlled machines**
 - C.4.4 Acceptance criteria of measurements**

- C.5** **Uncertainty of measurements**
- C.6** **Information to be recorded and reported**
- C.7** **Noise declaration**

Annex D (normative) **Whole-body and hand-arm vibration test**

- D.1** **General**
- D.2** **Measurement**
- D.3** **Vibration declaration**

Annex E (informative) **List of significant hazards**

Page count: 57