SLOVENSKI STANDARD
oSIST prEN 15630:2007

01-junij-2007

Stroji in obrati za miniranje in obdelavo naravnega kamna - Varnost - Zahteve za mostovne žage in žage za razrezovanje po meri (gantry-type in cut-to-size)

Machines and plants for mining and tooling of natural stone - Safety - Requirements for gantry-type and cut-to-size saws

Maschinen und Anlagen zur Gewinnung und Bearbeitung von Naturstein - Sicherheit - Anforderungen für Brücken und Aufteilsägen

Machines et installations d'extraction et d'usinage des pierres naturelles - Sécurité - Exigences relatives aux débiteuses-moulureuses a pont

Ta slovenski standard je istoveten z: **prEN 15630**

ICS:

25.080.60	Strojne žage	Sawing machines
73.120	Oprema za predelavo rudnin	Equipment for processing of minerals

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Machines and plants for mining and tooling of natural stone - Safety - Requirements for gantry-type and cut-to-size saws

Machines et installations d'extraction et d'usinage des pierres naturelles - Sécurité - Exigences relatives aux débiteuses-moulureuses à pont

Maschinen und Anlagen zur Gewinnung und Bearbeitung von Naturstein - Sicherheit - Anforderungen für Brücken- und Aufteilsägen

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If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (prEN 15630:2007) has been prepared by Technical Committee CEN/TC 151 “Construction equipment and building material machines — Safety”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

Annex A is normative and contains pictograms.

Introduction

This document is a type C standard as stated in EN ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

1 Scope

This standard applies for gantry-type and cut-to-size saws, consecutively called machines, designed to saw raw slabs/tranches form natural stone, as e. g. granite and other natural stone-like materials.

This standard deals with all significant hazards, hazardous situations and events relevant to gantry-type and cut-to-size saws, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4). This standard specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards.

This European Standard does not deal with:

— machines intended for operation in a potentially explosive atmosphere;

— upstream and downstream conveying elements for transporting the work pieces.

This European Standard does not deal with significant hazards associated with noise.

This European Standard does not deal with the following:

a) operation in severe environmental conditions (e. g. extreme temperatures, corrosive environment);

b) supply by electrical networks with voltages, frequencies, tolerances etc. different from those of public suppliers;

c) hazards due to errors in the software;

d) cordless remote controls.

This European standard does not cover machine operation in environments where electromagnetic disturbances are outside the range of those specified in EN 61000-6-2:2005.

This document is not applicable to machinery which are manufactured before the date of publication of this document by CEN.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 294:1992, *Safety of machinery — safety distances to prevent danger zones being reached by the upper limbs*

EN 349:1993, *Safety of machinery — minimum gaps to avoid crushing of parts of the human body*

EN 418:1992*, Safety of machinery — emergency stop equipment, functional aspects — principles for design*

EN 953:1997, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

EN 954-1:1996, *Safety of machinery — Safety related parts of control systems — Part 1: General principles for design*

EN 982:1996*, Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics*

EN 983:1996, *Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics*

EN 1037:1995*, Safety of machinery — Prevention of unexpected start-up*

EN 1050:1996; *Safety of machinery — Principles of risk assessment*

EN ISO 3744, *Acoustic — Determination of sound power levels of noise sources using sound pressure — Engineering method employing an enveloping measurement surface in an essentially free field over a reflecting plane*

EN ISO 11201; *Acoustic — Noise emitted by machinery and equipment — Measure of emission sound preasure levels at the work station and at other specified positions — Engineering method in an essentially free field over a reflecting plane*

EN ISO 11688-1, *Acoustic — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning*

HD 22.4 Rubber *insulated cabels — Rated voltages up to and including 450/750 V — Part 4: Cords and flexible cables*

prEN ISO 11688-2, *Acoustic — Recommended practice for the design of low-noise machinery and equipment — Part 2: Introduction to the physics of low-noise design*

EN 61000-6-3:2001*, Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments*

EN 61000-6-4:2001*, Electromagnetic compatibility (EMC) — Part 6-4: Generic standards — Emission standard for industrial environments*

EN 61000-6-1:2001*, Electromagnetic compatibility (EMC) — Part 6-1: Generic standards — Immunity for residential, commercial and light- industrial environments*

EN 61000-6-2:2006, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments*

EN 60204-1:1992*, Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

EN 60529:1991, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN ISO 11145:2001, *Optics and optical instruments — Lasers and laser-related equipment — Vocabulary and symbols*

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts — General principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

EN ISO 12100-2:2003, Safety *of machinery — Basic concepts – General principles for design — Part 2: Technical principles and specifications (ISO 12100-2:2003)*

3 Terms and definitions – Symbols and abbreviated terms

For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 apply. Additional definitions specifically needed for this document are added below.

3.1 Gantry-type and cut-to-size saw

Gantry-type and cut-to-size saw are machines, mounted on a base , which are mainly used to cut slabs/tranches of natural stone. The cut-off wheel (tool) is constantly cooled with water during the working process.

Using a turntable and a pivoting arrangement to tilt the cut-off wheel, any working position can be racked in.

With a moveable gantry-type and cut-to-size saw the infeed results from a horizontal support at the bridge. The kneeling of the cut-off wheel is made possible by a support mounted on the cross slide.

The main drive of a gantry-type and cut-to-size saw results from an electric motor.

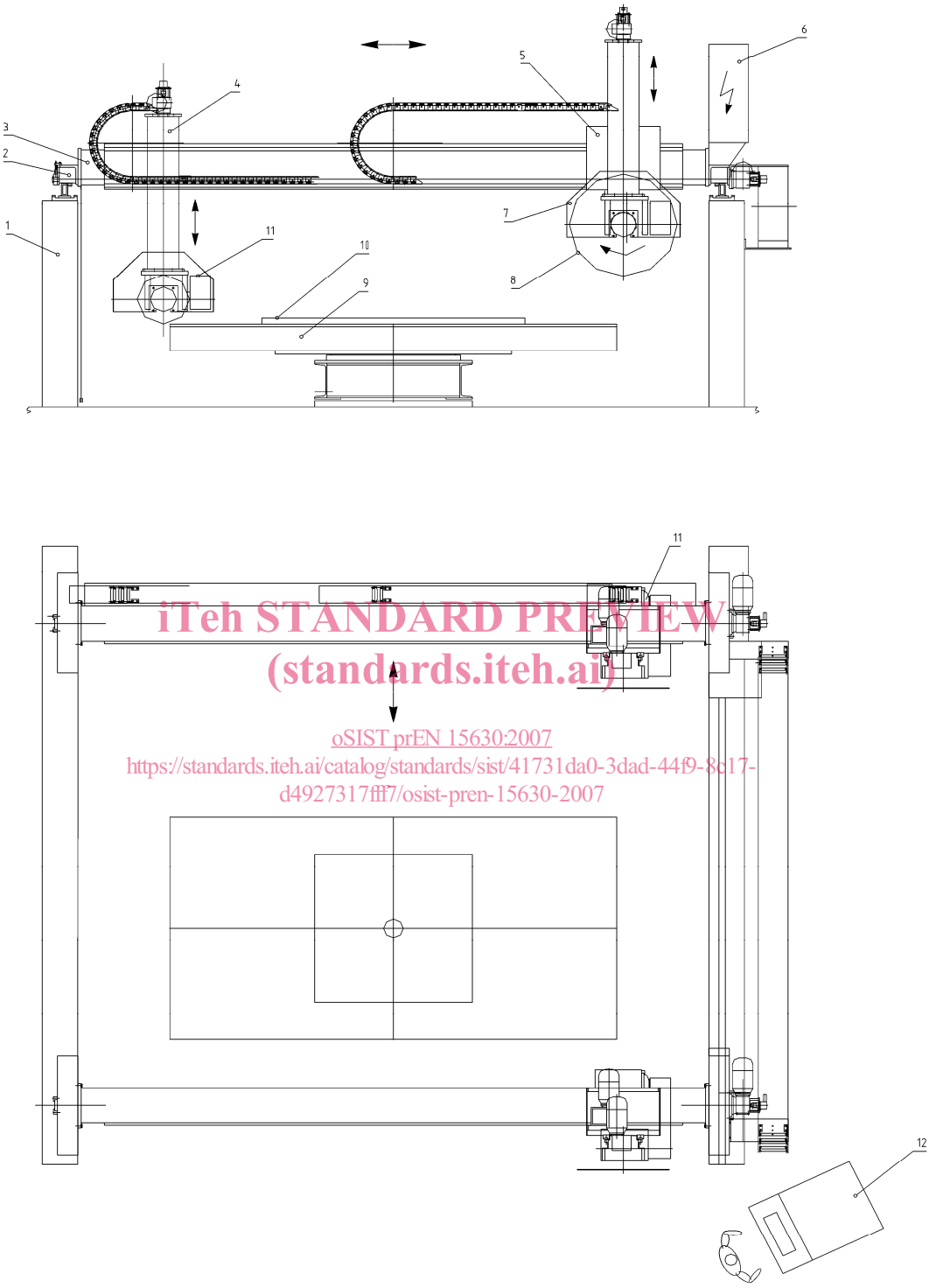
3.2 Types of gantry-type and cut-to-size saws

Gantry-type and cut-to-size saws which are classified in two types characterised below:

Type 1: Machine with a moveable bridge, flexible support with cut-off wheel and a stationary work piece.

Type 2: Machine with a moveable and pivoting bridge, flexible support with cut-off wheel and stationary work piece.

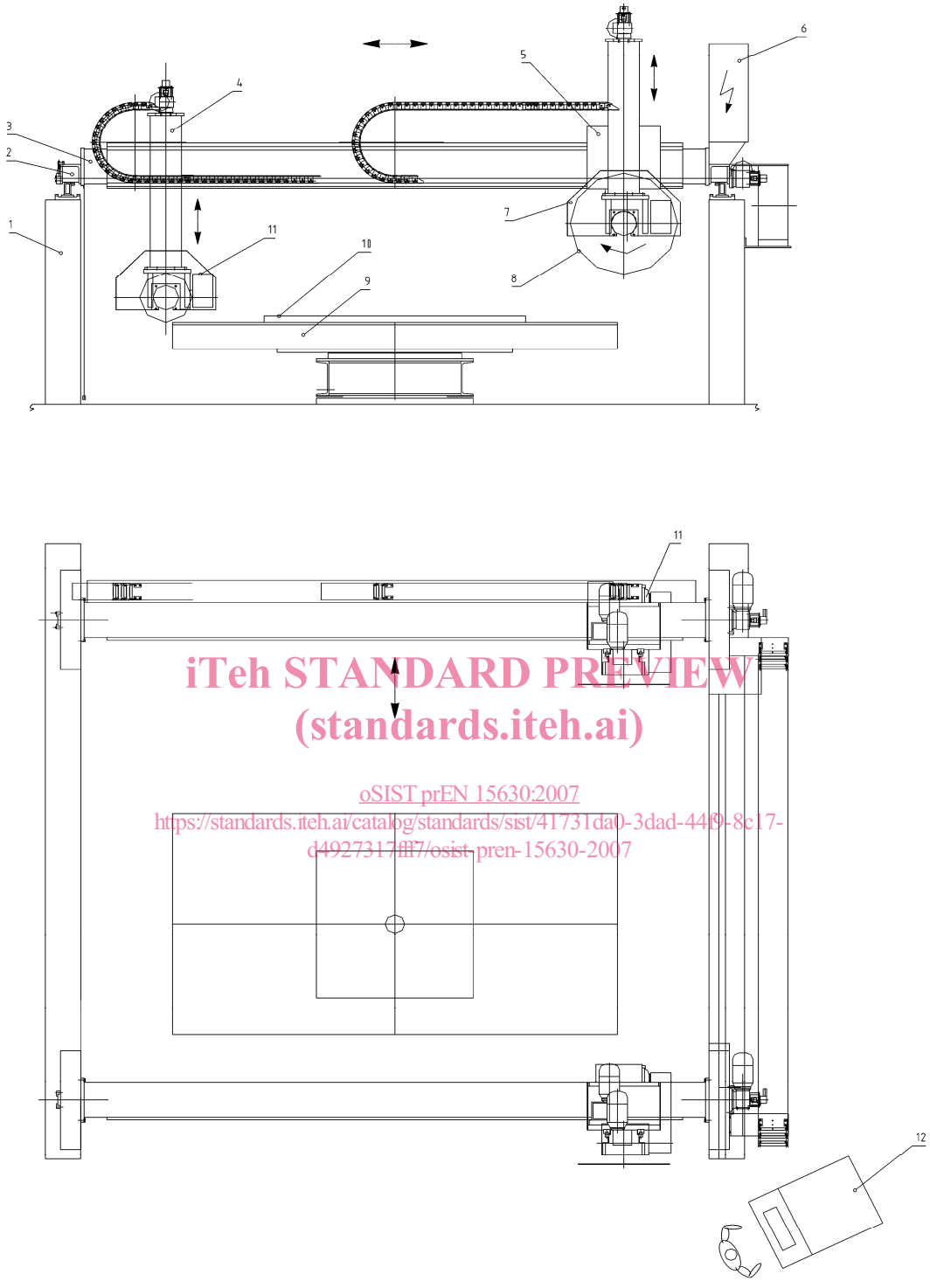
3.3 Illustration of the different types of gantry-type and cut-to-size saws



Key

1	basis	5	horizontal support	9	work table
2	carriage	6	switch cabinet	10	work piece
3	bridge	7	cover for cut-off wheel	11	main drive
4	height support	8	cut-off wheel	12	control panel

Figure 1 — Moveable gantry-type/cut-to-size saw (type 1)



Key

1	basis	5	horizontal support	9	work table
2	carriage	6	switch cabinet	10	work piece
3	bridge	7	cover for cut-off wheel	11	main drive
4	height support	8	cut-off wheel	12	control panel

Figure 2 — Moveable and pivoting gantry-type/cut-to-size saw (type 2)

3.4 Other terms

3.4.1
block
a Block is a cuboid natural stone created by the machining as a semi-finished product in the quarring process

3.4.2
tranche/slab
a tranche/slab is disc-shaped work piece cut off a block by means of a saw, designated for further processing

3.4.3
slide rail (track)
guide element for the bridge, usually stationary embedded in the base plate/base wall

3.4.4
bridge carriage
the carriage is the guide element on the slide rail (track) and carries the bridge

3.4.5
bridge
the bridge is the connection between the right and the left bridge bearing. It is the truss of the guides for the horizontal support

3.4.6
main drive
The main drive generates the tool action.

3.4.7
infeed drive
the infeed drives serve as drive for the adjustment axis (height adjustment, infeed, etc.)

3.4.8
horizontal support
guide element for vertical and horizontal adjustment

3.4.9
height support
component for the vertical adjustment of the spindle (main drive)

3.4.10
cut-off wheel
tool (cutting blade) consisting of a steel body, diamond-studded at the circuit

3.4.11
rated speed
speed of the drive spindle without tool (no working process) in rotations per minute (min^{-1}) with the nominal operation values stated by the manufacturer

3.4.12
nominal mass
the mass of the machine with all demountable parts, but without cut-off wheel

4 List of significant hazards

This clause contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this standard, identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce the risk.