Kantavad käeshoitavad ajamiga tööriistad. Katsemeetodid vibratsiooni mõõtmiseks. Osa 12: Lihvkäiad (ISO 28927-12:2012)

Hand-held portable power tools - Test methods for evaluation of vibration emission - Part 12: Die grinders (ISO 28927-12:2012)

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 28927-12:2012 sisaldab Euroopa standardi EN ISO 28927-12:2012 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 28927-12:2012 consists of the English text of the European standard EN ISO 28927-12:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.10.2012.	Date of Availability of the European standard is 15.10.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.160, 25.140.10

EUROPEAN STANDARD

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English Version

Hand-held portable power tools - Test methods for evaluation of vibration emission - Part 12: Die grinders (ISO 28927-12:2012)

Machines à moteur portatives - Méthodes d'essai pour l'évaluation de l'émission de vibrations - Partie 12: Meuleuses d'outillage (ISO 28927-12:2012)

Handgehaltene motorbetriebene Maschinen - Messverfahren zur Ermittlung der Schwingungsemission - Teil 12: Geradschleifer mit Spannzange (ISO 28927-12:2012)

This European Standard was approved by CEN on 12 October 2012.

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

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Ref. No. EN ISO 28927-12:2012: E

Foreword

This document (EN ISO 28927-12:2012) has been prepared by Technical Committee ISO/TC 118 "Compressors and pneumatic tools, machines and equipment" in collaboration with Technical Committee CEN/TC 231 “Mechanical vibration and shock” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 8662-13:1997.

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.

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

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 28927-12:2012 has been approved by CEN as a EN ISO 28927-12:2012 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive excerpt ER 2.2.1.1 and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

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Introduction

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

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

The vibration test codes for portable hand-held machines given in ISO 28927 (all parts) are based on ISO 20643, which gives general specifications for the measurement of the vibration emission of hand-held and hand-guided machinery. ISO 28927 (all parts) specifies the operation of the machines under type-test conditions and other requirements for the performance of type tests. The structure/numbering of its clauses follows that of ISO 20643.

The basic principle for transducer positioning first introduced in the IEC 60745 series of European standards is followed, representing a deviation from ISO 20643 for reasons of consistency. The transducers are primarily positioned next to the hand in the area between the thumb and the index finger, where they give the least disturbance to the operator gripping the machine.

It has been found that vibrations generated by die grinders vary considerably in typical use. This is largely due to variations in the unbalance of the inserted tool and from the contact between the inserted tool and the surface of the workpiece. The vibration value is also to a large extent dependent on the skill of the operator. This part of ISO 28927 uses a real working process for the test.

In order to provide a method that gives good measurement reproducibility, the procedure is described in detail and it is essential that the procedure be followed. The procedure is chosen to give vibration values which are, as far as possible, in accordance with ISO 20643.The values obtained according to this part of ISO 28927 are type-test values. The procedures of ISO 5349 are required whenever exposure at the workplace is to be assessed.

The values obtained are type-test values intended to be representative of the average of the upper quartile of typical vibration magnitudes in real-world use of the machines. However, the actual magnitudes vary considerably from time to time and depend on many factors, including the operator, the task and the inserted tool or consumable. The state of maintenance of the machine itself might also be of importance. Under real working conditions, the influences of the operator and process can be particularly important at low magnitudes It is therefore not recommended that emission values below 2,5 m/s^2 be used for estimating the vibration magnitude under real working conditions. In such cases, 2,5 m/s^2 is the recommended vibration magnitude for estimating the machine vibration.

If accurate values for a specific work place are required, then measurements (according to ISO 5349) in that work situation can be necessary. Vibration values measured in real working conditions can be either higher or lower than the values obtained using this part of ISO 28927.

Higher vibration magnitudes can easily occur in real work situations, caused by the use of excessively unbalanced inserted tools, bent shafts of burrs or worn-out collets.

The vibration test codes given in ISO 28927 (all parts) supersede those given in ISO 8662 (all parts), which has been replaced by the corresponding parts of ISO 28927 (see Foreword).

NOTE ISO 8662-11, *Hand-held portable power tools — Measurement of vibrations at the handle — Part 11: Fastener driving tools*, can be replaced by a future part of ISO 28927.

Hand-held portable power tools — Test methods for evaluation of vibration emission —

Part 12:
Die grinders

1 Scope

This part of ISO 28927 specifies a laboratory method for measuring hand-transmitted vibration emission at the handles of hand-held power driven portable die grinders. It is a type-test procedure for establishing the magnitude of vibration in the gripping areas of the machines where operating under type test conditions. It is intended that the results be used to compare different models of the same type of machine.

This part of ISO 28927 is applicable to hand-held machines (see Clause 5), driven pneumatically or by other means, equipped with a collet and intended for deburring operations using hard metal burrs or mounted points, on different materials ranging from hard steel to plastics. It is also applicable to low-speed die grinders using flap wheels or cylindrical sleeves.

NOTE 1 It is not applicable to straight grinders equipped with type 1 straight wheels, type 4 tapered wheels or different types of cylindrical plugs. For those machines, ISO 28927-4 is applicable.

NOTE 2 It is not applicable to die grinders used with wire brushes.

NOTE 3 To avoid confusion with the terms “power tool” and “inserted tool”, “machine” is used hereinafter for “power tool”.

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.

ISO 630 (all parts), *Structural steels*

ISO 2421, *Coated abrasives — Cylindrical sleeves*

ISO 2787, *Rotary and percussive pneumatic tools — Performance tests*

ISO 5349 (all parts), *Mechanical vibration — Measurement and evaluation of human exposure to hand transmitted vibration*

ISO 5391, *Pneumatic tools and machines — Vocabulary*

ISO 15637-1, *Holding fixtures of cylindrical abrasive sleeves — Part 1: Holding fixtures with shank for hand-held grinding machines*

ISO 17066, *Hydraulic tools — Vocabulary*

ISO 20643:2005, *Mechanical vibration — Hand-held and hand-guided machinery — Principles for evaluation of vibration emission.*

EN 12096, *Mechanical vibration — Declaration and verification of vibration emission values*

DIN 8033-1, *Hardmetal burrs — Technical requirements*

DIN 8033-2, *Hardmetal burrs — Cylindrical burrs*