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Varnostne zahteve za brusilna sredstva

Safety requirements for coated abrasive products

Sicherheitsanforderungen für Schleifmittel auf Unterlagen

Prescriptions de sécurité pour les produits abrasifs appliqués

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Safety requirements for coated abrasive products

Prescriptions de sécurité pour les produits abrasifs
appliqués

Sicherheitsanforderungen für Schleifmittel auf Unterlagen

This draft European Standard is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 143.

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Foreword

This document (prEN 13743:2008) has been prepared by Technical Committee CEN/TC 143 "Machine tools - Safety", the secretariat of which is held by SNV.

This document is currently submitted to the Unique Acceptance Procedure.

This document will supersede EN 13743:2001.

Significant changes against EN 13743:2001 are as follows:

- a) The standard was technically and editorially revised and partly adapted to EN 12413:2007 on bonded abrasives products;
- b) Table 2 with dimensional abbreviations was deleted;
- c) "Vibration" was included in the list of hazards in Table 3;
- d) Table 5 (now Table 4) containing maximum operating speeds and safety factors was simplified and burst speed factors were given instead of minimum bursting speed;
- e) Table 6 (now Table 5) with dimensional limitations and maximum operating speeds was simplified by abandoning the distinction between standard operating speeds and special operating speeds;
- f) Clause 6 on verification and inspection was shortened, 6.1.1 and 6.1.2 about safety speed test and bursting speed test were combined to a new 6.2, thereby deleting Table 7 with maximum operating speeds and safety test speeds;
- g) 6.2 on scope of the inspection was deleted together with Table 8;
- h) Clause 7 on information for use was shortened;
- i) the requirements for colour code stripes were deleted in Annex A and are now presented in a new Annex B;
- j) some values given in the speed conversion table in Annex B (now Annex C) were slightly changed.

Introduction

This European Standard has been prepared to provide one means of conforming with essential safety requirements, e.g. of the General Product Safety Directive and associated EFTA regulations.

This European Standard is addressed to designers, manufacturers and suppliers of the coated abrasive products and back-up pads described in the scope. In addition, it helps designers, manufacturers and suppliers of grinding machines in the selection of abrasive products, in order to reduce the risks and achieve conformity of the respective machinery with the Essential Safety Requirements of the Machinery Directive.

The extent to which hazards are covered is indicated in the scope of this European Standard.

1 Scope

This European Standard is applicable to the following coated abrasive products: flap wheels, flap discs, vulcanised fibre discs and spindle mounted flap wheels. It also applies to back-up pads for vulcanised fibre discs.

This European Standard specifies requirements and/or measures for removal or reduction of hazards resulting from the design and application of the coated abrasive products and clamping devices.

This European Standard also contains procedures and tests for verification of compliance with the requirements as well as safety information for use, which is to be made available to the user by the manufacturer.

The hazards taken into consideration are listed in Clause 4 of this standard.

This European Standard does not apply to non-woven web abrasive products, bonded abrasive products and superabrasive products.

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 554, *Standard atmospheres for conditioning and/or testing — Specifications*

3 Terms, definitions and symbols

For the purpose of this document the following terms and definitions apply.

3.1 General

3.1.1

coated abrasive product

abrasive product composed of backing, abrasive particles and bond and optionally a supporting element

NOTE Examples for supporting elements are pads and spindles.

3.1.2

clamping device

device for fixing and positioning the abrasive product on the spindle of the grinding machine

NOTE Clamping devices include e.g. back-up pads for vulcanised fibre discs, and clamping flanges for flap wheels.

3.2 Grinding machines

3.2.1

stationary grinding machine

grinding machine being fixed in position during operation

NOTE See for example EN 13218.

3.2.2

mobile grinding machine

grinding machine not being fixed in position during operation

NOTE Mobile grinding machines are manually guided (but not supported) by hand during use, e.g. floor grinding machines.

3.2.3

hand-held grinding machine

grinding machine being held in the hand during the grinding process

NOTE See for example EN 792-7, EN 792-9, EN 60745-2-3 and EN ISO 19432.

3.3 Type of application

3.3.1 General

See Table 1.

3.3.2

mechanically guided grinding

grinding process with feed movements of the abrasive product and/or workpiece guided by mechanical means

3.3.3

manually guided grinding

grinding process with feed movements of the abrasive product and/or the workpiece manually guided by the operator

3.3.4

hand-held grinding

grinding process with grinding machine entirely guided by the operator's hands

Table 1 — Type of application

Type of machine	Type of application	Abrasive product	Workpiece
Stationary grinding machines	Mechanically guided grinding	Fixed	Guided mechanically
		Guided mechanically	Fixed
		Guided mechanically	Guided mechanically
Stationary and mobile grinding machines	Manually guided grinding	Guided by hand	Fixed
		Fixed	Guided by hand
Hand-held grinding machines	Hand-held grinding	Guided by hand	Fixed

3.4 Symbols

The symbols used in this European Standard are listed in Table 2.

Table 2 — Symbols

Symbol	Designation	Definition	Unit
n_{ab}	Deflection speed of a spindle mounted flap wheel	Revolutions per minute at which the spindle of a rotating spindle mounted flap wheel is deflecting under centrifugal force	1/min
n_{max}	Maximum permissible speed of rotation	Revolutions per minute of a rotating new abrasive product at maximum operating speed	1/min
S_{ab}	Safety factor against spindle deflection for a spindle mounted flap wheel	Deflection speed divided by maximum permissible speed of rotation: $S_{ab} = \frac{n_{ab}}{n_{max}}$	—
v_s	Maximum operating speed	Maximum permissible peripheral speed of a rotating abrasive product	m/s
v_{br}	Bursting speed	Peripheral speed at which a rotating abrasive product breaks due to centrifugal force	m/s
$v_{br\ min}$	Minimum bursting speed	Peripheral speed, which a rotating abrasive product shall at least reach without bursting due to centrifugal force	m/s
f_{br}	Burst speed factor	Bursting speed divided by maximum operating speed: $f_{br} = \frac{v_{br}}{v_s}$	—
S_{br}	Safety factor against bursting due to centrifugal force	Bursting speed divided by maximum operating speed, all squared: $S_{br} = \left(\frac{v_{br}}{v_s} \right)^2$	—