SLOVENSKI STANDARD
SIST EN ISO 16089:2016/oprA1:2021

01-januar-2021

Obdelovalni stroji - Varnost - Nepremični brusilni stroji - Dodatek 1 (ISO 16089:2015/DAM 1:2020)

Machine tools - Safety - Stationary grinding machines - Amendment 1 (ISO 16089:2015/DAM 1:2020)

Werkzeugmaschinen - Sicherheit - Ortsfeste Schleifmaschinen - Änderung 1 (ISO 16089:2015/DAM 1:2020)

Machines-outils - Sécurité - Machines à meuler fixes - Amendement 1 (ISO 16089:2015/DAM 1:2020)

Ta slovenski standard je istoveten z: **EN ISO 16089:2015/prA1**

ICS:

25.080.50	Brusilni in polirni stroji	Grinding and polishing machines

SIST EN ISO 16089:2016/oprA1:2021 **en,fr,de**

DRAFT AMENDMENT

ISO 16089:2015/DAM 1

ISO/TC **39**/SC **10** Secretariat: **SNV**

Voting begins on: **2020-10-28**

Voting terminates on: **2021-01-20**

Machine tools — Safety — Stationary grinding machines

AMENDMENT 1

Machines-outils — Sécurité — Machines à meuler fixes

AMENDEMENT 1

ICS: 25.080.01

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO 16089:2015/DAM 1:2020(E)

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Published in Switzerland

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This document was prepared by Technical Committee ISO/TC 39, *Machine tools*, Subcommittee SC 10, *Safety*.

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Machine tools — Safety — Stationary grinding machines

AMENDMENT 1

Introduction

Add the following as a first sentence:

This standard is a type C standard as stated in ISO 12100:2011.

Delete the last paragraph.

5.12, Table 3

Replace bullet points 2), 3) and 6) as follows:

Table 3 — Correlation of safety function and performance level

Safety function	Required performance level, PL_r
2) Hold-to run control	
if the axis speed limit monitoring is done in PL_r = d	c
if the axis speed limit monitoring is done in PL_r < d	d
NOTE It is also sufficient, if the combination of hold to run and enabling device complying with the required PL.	
3) Control system with electronic hand wheel	
if the axis speed limit monitoring is done in PL_r = d	c
if the axis speed limit monitoring is done in PL_r < d	d
NOTE It is also sufficient, if the combination electronic hand wheel and enabling device complying with the required PL.	
6) Axis reduced speed monitoring for axes	
if the feed control of the axis movement is effected by means of a hold-to-run device with PL_r = c or an electronic hand wheel with PL_r = c	d
if the feed control of the axis movement is effected by means of a hold-to-run device with PL_r = d or an electronic hand wheel with PL_r = d	no requirement

5.13.2.1, last sentence of 9th paragraph

Correct the internal reference as follows:

> The guard enclosing the work zone shall comply with the requirements of A.3.5.2.2 in relation to the wall thickness and material and A.3.5.2.1 in relation to the attachment.

A.3.2.2, Table A.1

Replace Table A.1 with the following table:

Table A.1 — Wall thicknesses for steel abrasive product guards for bonded abrasive products, except for cutting-off wheels

Dimensions in millimetres

Material[a]	Peripheral speed[d] v_{max} m/s	Width of abrasive product T	Outside diameter of abrasive product D																			
			125		200		315		406		508		610		762		914		1 067		1 250	
			Minimum wall thicknesses[b,c]																			
			t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s
1, 2, 3	32	25	1,5	1,5	1,5	1,5	1,5	1,5	2,0	1,5	2,5	2,0	3,0	2,5	4,0	3,0	4,5	3,5	5,5	4,0	6,0	4,5
		50	1,5	1,5	1,5	1,5	2,5	2,0	3,0	2,5	3,5	3,0	4,5	3,5	5,5	4,0	6,5	5,0	7,5	5,5	8,5	6,5
		100	1,5	1,5	2,0	1,5	3,0	2,5	4,0	3,0	5,0	4,0	6,0	4,5	7,5	5,5	9,0	6,5	10,5	8,0	12,0	9,0
		160	1,5	1,5	2,5	2,0	4,0	3,0	5,0	4,0	6,5	5,0	7,5	5,5	9,5	7,0	11,0	8,5	13,0	10,0	15,0	11,5
		200	2,0	1,5	3,0	2,0	4,5	3,5	5,5	4,5	7,0	5,5	8,5	6,5	10,5	8,0	12,5	9,5	14,5	11,0	17,0	13,0
		250	2,0	1,5	3,0	2,5	5,0	4,0	6,5	5,0	8,0	6,0	9,5	7,0	11,5	9,0	14,0	10,5	16,0	12,0	—	—
		315	—	—	—	—	5,5	4,0	7,0	5,5	8,5	6,5	10,5	8,0	13,0	10,0	15,5	12,0	—	—	—	—
		400	—	—	—	—	—	—	8,0	6,0	10,0	7,5	12,0	9,0	14,5	11,0	17,5	13,0	—	—	—	—
		500	—	—	—	—	—	—	—	—	11,0	8,5	13,0	10,0	16,5	12,5	—	—	—	—	—	—
		600	—	—	—	—	—	—	—	—	12,0	9,0	14,5	11,0	18,0	13,5	—	—	—	—	—	—
1, 2, 3	40	25	1,5	1,5	1,5	1,5	2,0	1,5	2,5	2,0	3,0	2,5	4,0	3,0	5,0	3,5	5,5	4,5	6,5	5,0	7,5	6,0
		50	1,5	1,5	2,0	1,5	3,0	2,0	3,5	3,0	4,5	3,5	5,5	4,0	6,5	5,0	8,0	6,0	9,0	7,0	10,5	8,0
		100	1,5	1,5	2,5	2,0	4,0	3,0	5,0	4,0	6,0	4,5	7,5	5,5	9,5	7,0	11,0	8,5	13,0	9,5	15,0	11,5
		160	2,0	1,5	3,0	2,5	5,0	4,0	6,5	5,0	8,0	6,0	9,5	7,0	11,5	9,0	14,0	10,5	16,0	12,0	19,0	14,5
		200	2,5	2,0	3,5	2,5	5,5	4,0	7,0	5,5	8,5	6,5	10,5	8,0	13,0	10,0	15,5	11,5	18,0	13,5	21,0	16,0
		250	2,5	2,0	4,0	3,0	6,0	4,5	8,0	6,0	9,5	7,5	11,5	9,0	14,5	11,0	17,5	13,0	20,0	15,0	—	—
		315	—	—	—	—	7,0	5,0	8,5	6,5	11,0	8,0	13,0	10,0	16,5	12,5	19,5	14,5	—	—	—	—
		400	—	—	—	—	—	—	10,0	7,5	12,0	9,0	14,5	11,0	18,5	14,0	22,0	16,5	—	—	—	—
		500	—	—	—	—	—	—	—	—	13,5	10,5	16,5	12,5	20,5	15,5	—	—	—	—	—	—
		600	—	—	—	—	—	—	—	—	15,0	11,0	18,0	13,5	22,5	17,0	—	—	—	—	—	—

[a] Designation of material (see Table A.8).

[b] t_p Wall thickness peripheral part.

t_s Wall thickness side part.

[c] Determination of the wall thicknesses (see A.4.3).

[d] Highest possible peripheral speed of the abrasive product taking account of a fault of the wheel spindle drive (monitored speed).

Table A.1 *(continued)*

Material[a]	Peripheral speed[d] v_{max} m/s	Width of abrasive product *T*	Outside diameter of abrasive product *D*																			
			125		200		315		406		508		610		762		914		1 067		1 250	
			Minimum wall thicknesses[b,c]																			
			t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s
1, 2, 3	50	25	1,5	1,5	1,5	1,5	2,5	2,0	3,0	2,5	4,0	3,0	5,0	3,5	6,0	4,5	7,0	5,5	8,0	6,0	9,5	7,0
		50	1,5	1,5	2,5	2,0	3,5	2,5	4,5	3,5	5,5	4,0	6,5	5,0	8,0	6,0	10,0	7,5	11,5	8,5	13,5	10,0
		100	2,0	1,5	3,0	2,5	5,0	3,5	6,0	4,5	7,5	6,0	9,5	7,0	11,5	8,5	14,0	10,5	16,0	12,0	19,0	14,0
		160	2,5	2,0	4,0	3,0	6,0	4,5	8,0	6,0	9,5	7,5	11,5	9,0	14,5	11,0	17,5	13,0	20,0	15,0	23,5	18,0
		200	3,0	2,0	4,5	3,5	7,0	5,0	8,5	6,5	11,0	8,0	13,0	10,0	16,0	12,0	19,5	14,5	22,5	17,0	26,5	20,0
		250	3,0	2,5	5,0	3,5	7,5	5,5	9,5	7,5	12,0	9,0	14,5	11,0	18,0	13,5	21,5	16,5	25,0	19,0	—	—
		315	—	—	—	—	8,5	6,5	11,0	8,0	13,5	10,0	16,5	12,5	20,5	15,5	24,5	18,5	—	—	—	—
		400	—	—	—	—	—	—	12,0	9,0	15,0	11,5	18,5	14,0	23,0	17,0	27,5	20,5	—	—	—	—
		500	—	—	—	—	—	—	—	—	17,0	13,0	20,5	15,5	25,5	19,0	—	—	—	—	—	—
		600	—	—	—	—	—	—	—	—	18,5	14,0	22,5	17,0	28,0	21,0	—	—	—	—	—	—
1, 2, 3	63	25	1,5	1,5	2,0	1,5	3,0	2,5	4,0	3,0	5,0	4,0	6,0	4,5	7,5	5,5	9,0	6,5	10,0	7,5	12,0	9,0
		50	2,0	1,5	3,0	2,0	4,5	3,5	5,5	4,0	7,0	5,0	8,5	6,5	10,5	8,0	12,5	9,5	14,5	11,0	16,5	12,5
		100	2,5	2,0	4,0	3,0	6,0	4,5	8,0	6,0	9,5	7,5	11,5	9,0	14,5	11,0	17,5	13,0	20,0	15,0	23,5	17,5
		160	3,0	2,5	5,0	4,0	7,5	6,0	10,0	7,5	12,0	9,0	14,5	11,0	18,0	13,5	22,0	16,5	25,5	19,0	30,0	22,5
		200	3,5	2,5	5,5	4,0	8,5	6,5	11,0	8,0	13,5	10,0	16,5	12,5	20,5	15,5	24,5	18,5	28,5	21,5	—	—
		250	4,0	3,0	6,0	4,5	9,5	7,0	12,0	9,0	15,0	11,5	18,5	14,0	22,5	17,0	27,0	20,5	—	—	—	—
		315	—	—	—	—	10,5	8,0	13,5	10,0	17,0	13,0	20,5	15,5	25,5	19,0	—	—	—	—	—	—
		400	—	—	—	—	—	—	15,5	11,5	19,0	14,5	23,0	17,5	28,5	21,5	—	—	—	—	—	—
		500	—	—	—	—	—	—	—	—	21,5	16,0	25,5	19,5	—	—	—	—	—	—	—	—
		600	—	—	—	—	—	—	—	—	23,5	17,5	28,0	21,0	—	—	—	—	—	—	—	—

[a] Designation of material (see Table A.8).

[b] t_p Wall thickness peripheral part.

t_s Wall thickness side part.

[c] Determination of the wall thicknesses (see A.4.3).

[d] Highest possible peripheral speed of the abrasive product taking account of a fault of the wheel spindle drive (monitored speed).

Table A.1 *(continued)*

Material[a]	Peripheral speed[d] v_{max} m/s	Width of abrasive product T	Outside diameter of abrasive product D																			
			125		200		315		406		508		610		762		914		1 067		1 250	
			Minimum wall thicknesses[b,c]																			
			t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s	t_p	t_s
1, 2, 3	80	25	1,5	1,5	2,5	2,0	4,0	3,0	5,0	4,0	6,0	4,5	7,5	5,5	9,5	7,0	11,0	8,5	13,0	9,5	15,0	11,5
		50	2,5	2,0	3,5	2,5	5,5	4,0	7,0	5,5	8,5	6,5	10,5	8,0	13,0	10,0	15,5	11,5	18,0	13,5	21,0	16,0
		100	3,0	2,5	5,0	4,0	7,5	6,0	10,0	7,5	12,0	9,0	14,5	11,0	18,5	14,0	22,0	16,5	25,5	19,0	30,0	22,5
		160	4,0	3,0	6,0	4,5	9,5	7,5	12,5	9,5	15,5	11,5	18,5	14,0	23,0	17,5	27,5	21,0	—	—	—	—
		200	4,5	3,5	7,0	5,0	10,5	8,0	13,5	10,5	17,0	13,0	20,5	15,5	26,0	19,5	—	—	—	—	—	—
		250	5,0	3,5	7,5	6,0	12,0	9,0	15,5	11,5	19,0	14,5	23,0	17,5	29,0	21,5	—	—	—	—	—	—
		315	—	—	—	—	13,5	10,0	17,0	13,0	21,5	16,0	26,0	19,5	—	—	—	—	—	—	—	—
		400	—	—	—	—	—	—	19,5	14,5	24,0	18,0	29,0	22,0	—	—	—	—	—	—	—	—
1, 2, 3	100	25	2,0	1,5	3,0	2,5	5,0	3,5	6,0	4,5	7,5	6,0	9,5	7,0	11,5	8,5	14,0	10,5	16,0	12,0	19,0	14,0
		50	3,0	2,0	4,5	3,5	7,0	5,0	8,5	6,5	11,0	8,0	13,0	10,0	16,0	12,0	19,5	14,5	22,5	17,0	26,5	20,0
		100	4,0	3,0	6,0	4,5	9,5	7,0	12,0	9,0	15,0	11,5	18,5	14,0	23,0	17,0	27,5	20,5	—	—	—	—
		160	5,0	3,5	7,5	6,0	12,0	9,0	15,5	11,5	19,0	14,5	23,0	17,5	29,0	21,5	—	—	—	—	—	—
		200	5,5	4,0	8,5	6,5	13,5	10,0	17,0	13,0	21,5	16,0	26,0	19,5	—	—	—	—	—	—	—	—
1, 2, 3	125	25	2,5	2,0	4,0	3,0	6,0	4,5	7,5	6,0	9,5	7,0	11,5	8,5	14,5	11,0	17,0	13,0	—	—	—	—
		50	3,5	2,5	5,5	4,0	8,5	6,5	11,0	8,0	13,5	10,0	16,0	12,0	20,0	15,0	24,0	18,0	—	—	—	—
		100	5,0	3,5	7,5	6,0	12,0	9,0	15,0	11,5	19,0	14,0	23,0	17,0	28,5	21,5	—	—	—	—	—	—
		160	6,0	4,5	9,5	7,0	15,0	11,0	19,0	14,5	24,0	18,0	29,0	21,5	—	—	—	—	—	—	—	—

a Designation of material (see Table A.8).

b t_p Wall thickness peripheral part.

t_s Wall thickness side part.

c Determination of the wall thicknesses (see A.4.3).

d Highest possible peripheral speed of the abrasive product taking account of a fault of the wheel spindle drive (monitored speed).