SLOVENSKI STANDARD
SIST EN 10139:2016/oprA1:2018

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Hladno valjani ozki trakovi iz maloogljičnega (mehkega) jekla za preoblikovanje v hladnem - Tehnični dobavni pogoji

Cold rolled uncoated low carbon steel narrow strip for cold forming - Technical delivery conditions

Kaltband ohne Überzug aus weichen Stählen zum Kaltumformen - Technische Lieferbedingungen

Feuillards non revêtus en aciers à bas carbone pour formage à froid - Conditions techniques de livraison

Ta slovenski standard je istoveten z: **EN 10139:2016/prA1**

ICS:

77.140.50	Ploščati jekleni izdelki in polizdelki	Flat steel products and semi-products

SIST EN 10139:2016/oprA1:2018 **en,fr,de**

EUROPEAN STANDARD

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English Version

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This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ECISS/TC 109.

This draft amendment A1, if approved, will modify the European Standard EN 10139:2016. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 10139:2016/prA1:2018) has been prepared by Technical Committee ECISS/TC 109 "Coated and uncoated flat products to be used for cold forming", the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

In comparison with the previous edition, the following technical modifications have been made:

— Clause 5: update of the standard designation;

— Table 1 (1/2): modification of the Re values of the corresponding symbols for DC 04 Designation and update of Footnote c;

— Table 1 (2/2): replacement of the material number by "LC" for Designations DC05, DC06 and DC07.

1 Modification to Clause 5 Designation

Add the following to the end of the second paragraph:

"reference to European Standard EN 10140:2006 and the nominal dimensions of the product and for the steel grade"

2 Modification to Table 1 (1/2)

Replace Table 1(1/2) with the following:

Table 1 — Mechanical characteristics and chemical composition (1/2)

Designation		Classification according to EN 10020	Type of deoxidation	Validity of the mechanical properties	Delivery condition	Symbol	R_e [e] MPa	R_m MPa
According to EN 10027-1	According to EN 10027-2							
DC01	1.0330	Non-alloyed quality steel [l]	At the discretion of the manufacturer	3 months	Annealed	A	-	270 – 390
					Skin passed	LC	max. 280 [a, d]	270 - 410[d]
					Work hardened	C290	200 - 380	290 – 430
						C340	min. 250	340 – 490
						C390	min. 310	390 – 540
						C440	min. 360	440 – 590
						C490	min. 420	490 – 640
						C590	min. 520	590 – 740
						C690	min. 630	min. 690 [j]
DC03	1.0347	Non-alloyed quality steel [l]	Fully killed	6 months	Annealed	A	-	270 – 370
					Skin passed	LC	max. 240 [a, d]	270 - 370[d]
					Work hardened	C290	210 - 355	290 – 390
						C340	min. 240	340 – 440
						C390	min. 330	390 – 490
						C440	min. 380	440 – 540
						C490	min. 440	490 – 590
						C590	min. 540	min. 590
DC04	1.0338	Non-alloyed quality steel [l]	Fully killed	6 months	Annealed	A	-	270 – 350
					Skin passed	LC	max. 210 [a, c, d]	270 - 350[d]
					Work hardened	C290	220 - 325	290 – 390
						C340	min. 240	340 – 440
						C390	min. 350	390 – 490
						C440	min. 400	440 – 540
						C490	min. 460	490 – 590
						C590	min. 560	590 – 690

Designation		Classification according to EN 10020	Type of deoxidation	Validity of the mechanical properties	Delivery condition	Symbol	R_e [e] MPa	R_m MPa
According to EN 10027-1	According to EN 10027-2							
DC05	1.0312	Non-alloyed quality steel [l]	Fully killed	6 months	Skin passed	LC	max. 180 [a, d]	270 - 330[d]
DC06	1.0873	Alloy quality steel	Fully killed	No limit	Skin passed	LC	max. 170 [a, d, f]	270 - 330[d]
DC07	1.0898	Alloy quality steel	Fully killed	No limit	Skin passed	LC	max. 150 [a, d, f]	270 - 310[d]
NOTE 1 MPa = 1 N/mm²								

- [a] If the yield point is not pronounced, the yield strength values apply to the 0,2 % proof stress, otherwise to the lower yield strength (R_{eL}). For thicknesses less than or equal to 0,7 mm, but greater than 0,5 mm, 20 MPa higher maximum values are permitted for the yield strength. In the same way, the HV values increase by 5 units. For thicknesses less than or equal to 0,5 mm, 40 MPa higher maximum values are permitted for the yield strength. In the same way, the HV values increase by 10 units.
- [b] When the thickness is less than or equal to 0,7 mm and greater than 0,5 mm, the minimum value for the elongation after fracture is reduced by 2 units.
- When the thickness is less than or equal to 0,5 mm and greater than 0,25 mm, the minimum value is reduced by 4 units.
- When the thickness is less than or equal to 0,25 mm, and greater than 0,15 mm, the minimum value is reduced by 6 units.
- For thicknesses less than or equal to 0,15 mm, the minimum value is reduced by 8 units.
- [c] For thicknesses higher than 1,5 mm, a maximum value of 235 MPa is permitted.

3 Modification to Table 1 (2/2)

Replace Table 1 (2/2) with the following:

Table 1 — Mechanical characteristics and chemical composition (2/2)

Designation according to EN 10027-1	Symbol	Elongation after fracture		r_{90} [h, i]	n_{90} [h]	Hardness [k] *HV*		Chemical composition (ladle analysis) Mass %, max.				
		A_{80} %	A_{50} %									
		min.	min.	min.	min.	min.	max.	C	P	S	Mn	Ti
DC01	A	28	30	m	m	m	105	0,12 [j]	0,045	0,045	0,60 [j]	m
	LC	28 [b, d]	30 [b, d]	m	m	m	115 [d]					
	C290	18	20	m	m	95	125					
	C340	m	m	m	m	105	155					
	C390					117	172					
	C440					135	185					
	C490					155	200					
	C590					185	225					
	C690					215	m					
DC03	A	34	36	m	m	m	100	0,10	0,035	0,035	0,45	m
	LC	34 [b, d]	36 [b, d]	1,3	m	m	110 [d]					

Designation according to EN 10027-1	Symbol	Elongation after fracture A_{80} %	Elongation after fracture A_{50} %	r_{90} [h, i]	n_{90} [h]	Hardness [k] *HV*		Chemical composition (ladle analysis) Mass %, max.				
		min.	min.	min.	min.	min.	max.	C	P	S	Mn	Ti
	C290	22	24	[m]	[m]	95	117					
	C340 C390 C440 C490 C590	[m]	[m]	[m]	[m]	105 117 135 155 185	130 155 172 185 [m]					
DC04	A	38	40	[m]	[m]	[m]	95	0,08	0,030	0,030	0,40	[m]
	LC	38 [b, d]	40 [b, d]	1,6	0,180	[m]	105 [d]					
	C290	24	26	[m]	[m]	95	117					
	C340 C390 C440 C490 C590	[m]	[m]	[m]	[m]	105 117 135 155 185	130 155 172 185 215					
DC05	LC	40 [b, d]	42 [b, d]	1,9	0,200	[m]	100 [d]	0,06	0,025	0,025	0,35	[m]
DC06	LC	38 [b, d]	40 [b, d]	2,1	0,220	[m]	[m]	0,02	0,020	0,020	0,25	0,3 [g]
DC07	LC	40 [b, d]	42 [b, d]	2,5	0,230	[m]	[m]	0,01	0,020	0,020	0,20	0,2 [g]

NOTE 1 MPa = 1 N/mm²

[d] The values given in the Table 1 apply only to surface appearance MA. For surface appearances MB and MC, the yield strength and tensile strength values increase by 20MPa and the elongation after fracture values fall by two units. In the same way, the *HV* values increase by 5 units.

[e] For calculation purposes, a minimum yield strength value (R_e) of 140 MPa may be assumed for steel grades DC01, DC03, DC04 and DC05 in delivery conditions A and LC.

[f] For calculation purposes, a minimum yield strength value (R_e) of 120 MPa may be assumed for steel grade DC06 and 100 MPa for DC07.

[g] Titanium may be replaced by niobium. Carbon and nitrogen shall be fully fixed.

[h] These values apply only to thicknesses greater than 0,50 mm and to strip widths greater than 250 mm. The *r* and *n* values may be determined by agreement at the time of ordering.

[i] For thicknesses greater than 2 mm, the value of r_{90} is reduced by 0,2.

[j] For grade DC01 in the delivery condition C690, the C and Mn contents may be exceeded.

[k] See 6.3.2.

[l] Unless otherwise agreed at the time of enquiry and order, grades DC01, DC03, DC04 and DC05 may be supplied as alloy steels (for example with boron or titanium).

[m] Not required.