



275/2013. Govern. decree  
Nr.20

ÉMI NON-PROFIT LIMITED LIABILITY COMPANY FOR QUALITY  
CONTROL AND INNOVATION IN BUILDING  
ENGINEERING SERVICES DIRECTORATE  
CONFORMITY ASSESSMENT CENTER  
CERTIFICATION OFFICE

H-2000 Szentendre, Dózsa György út 26. Postal address: H-2001 Szentendre, Pf : 180.  
Phone: +36 (26) 502 300 E-mail: tanusitas@emi.hu WEB: http://www.emi.hu

## CERTIFICATE OF CONSTANCY OF PERFORMANCE

**20-CPR-120-(C-12/2010)**

In compliance with Government decree no. 275/2013. (issued on 16th July) this certificate applies to the construction product

**Steelag Praha s.r.o. made cold formed, weldable reinforcing steel:**

**ribbed reinforcing steel in coils and straightened wires  
in steel quality B500A (MSZ EN 10027-1:2017)**

with product performance and intended use shown in the annex as page 2/2 of this certificate and produced by

**STEELAG Praha s.r.o.**

**27801 Kralupy nad Vltavu, u Dyharny 946, Czech Republic**

*and produced in the manufacturing plant:*

**STEELAG Praha s.r.o.**

**27801 Kralupy nad Vltavu, u Dyharny 946, Czech Republic**

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in **National Technical Assessment no. A-56/2015 dated at 18.07.2022** under system (1+) are applied and that

**the product fulfils all the prescribed requirements set out above.**

This certificate was first issued on 09.10.2015\* and will remain valid as long as the test methods and/or factory production control requirements included in the National Technical Assessment used to assess the performance of the declared characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly.

***This certificate consists of 2 pages!***

Issue: 4.

Dated at Szentendre, 29.07.2022



Ágnes Molnár  
Head of Certification Office

\* certificate was issued first on 27.03.2012 within the period of validity of joint Ministerial Decree No. 3/2003. (25th January) BM-GKM-kvVM of Ministry of Interior, Ministry of Economy and Transport, and Ministry of Environment Protection and Water Management.



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## CERTIFICATE OF CONSTANCY OF PERFORMANCE

20-CPR-120-(C-12/2010)

### ANNEX

#### Nominal diameters:

Ø 5 - Ø 14 mm

#### Intended use of the product:

The reinforcing steel coils and straightened wires may be used as reinforcement of concrete structures.

The steel coils and straightened wires can be taken into account as products in ductility class A with  $R_e (f_{yk}) = 500$  MPa declared yield strength calculated from nominal cross-section at design works and strength calculations, according to Annex C of standard no. MSZ EN 1992-1-1:2010 (EUROCODE 2).

The steel coils and straightened wires can be taken into account with the tensile performances of B55.50 (MSZ 982:1987) steel.

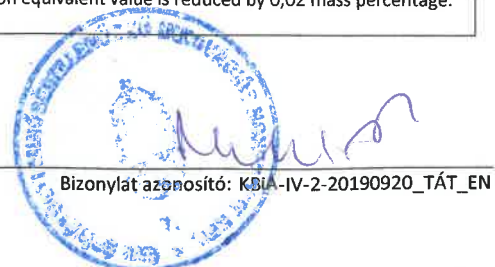
Alapvető tulajdonságok	Teljesítmény	
Yield strength, $R_e$ [MPa] <sup>1) 2)</sup>	≥ 500 (characteristic value) ≥ 485 (individual value)	
Stress ratio, $R_m / R_e$ <sup>1)</sup>	≥ 1,05 (characteristic value) ≥ 1,03 (individual value)	
Yield ratio, $R_{e,act} / R_{e,nom}$ <sup>1)</sup>	≤ 1,30 (individual value)	
Extension, $A_{gt}$ [%]	≥ 2,5 (characteristic value) ≥ 2,00 (individual value)	
Tensile strength, $R_m$ [MPa] <sup>2)</sup>	≥ 560 (individual value)	
Elongation, $A_5$	≥ 10,0 % (average value)	
Rib geometry	- $a_m$ [mm]	0,03·d – 0,15·d
	- $\beta$ [°]	between 35° and 75°
	- $\Sigma ei$ [mm]	≤ d· $\pi$ /4
	- c [mm]	0,4·d – 1,5·d
	- fR, minimum (individual value)	d ≤ 6 mm: 0,035 6 mm < d ≤ 12 mm: 0,040 d > 12 mm: 0,056
bending test 180 degrees, without crack	d ≤ 16 mm: 3d with max mandrel diameter	
bending test 90 degrees, re-bending 20 degrees	d ≤ 16 mm: 5d with max mandrel diameter	
Tolerance from nominal cross-section / mass per metre [kg/m <sup>3</sup> ], deviance from nominal value [%]	d ≤ 8 mm: ± 6,0 d > 8 mm: ± 4,5	
Carbon equivalent value <sup>a)</sup> , $C_{eq}$ [%] - cast analysis - product analysis	≤ 0,50 ≤ 0,52	
Cast analysis	C <sup>a)</sup> ; S; P; N <sub>2</sub> <sup>b)</sup> ; Cu ≤ 0,22; ≤ 0,050; ≤ 0,050; ≤ 0,012; ≤ 0,80	
Product analysis	C <sup>a)</sup> ; S; P; N <sub>2</sub> <sup>b)</sup> ; Cu ≤ 0,24; ≤ 0,055; ≤ 0,055; ≤ 0,014; ≤ 0,85	
Reaction to fire	A1	

<sup>1)</sup>  $R_e = R_{eH}$  (upper yield strength), or  $R_e = R_{p0,2}$  (proof strength) in case if upper yield strength ( $R_{eH}$ ) does not occur.  
<sup>2)</sup> Calculated with nominal cross section.  
<sup>3)</sup> Evaluation was made with 180° bending test.  
<sup>a)</sup> It is allowed to exceed the highest allowed mass percentage value of carbon by 0,03, if carbon equivalent value is reduced by 0,02 mass percentage.  
<sup>b)</sup> Higher nitrogen content is acceptable, if content of nitrogen-fixing elements is sufficient.

Issue: 4.

Dated at Szentendre, 29.07.2022

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Bizonylat azonosító: KSA-IV-2-20190920\_TÁT\_EN



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## CERTIFICATE OF CONSTANCY OF PERFORMANCE

**20-CPR-121-(C-12/2010)**

In compliance with Government decree no. 275/2013. (issued on 16th July) this certificate applies to the construction product

**Steelag Praha s.r.o. made cold formed, weldable reinforcing steel:  
ribbed reinforcing steel in coils and straightened wires  
in steel quality B550A (MSZ EN 10027-1:2017)**

with product performance and intended use shown in the annex as page 2/2 of this certificate and produced by

**STEELAG Praha s.r.o.**  
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Issue: 3.

Dated at Szentendre, 29.07.2022



  
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Ágnes Molnár  
Head of Certification Office

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## CERTIFICATE OF CONSTANCY OF PERFORMANCE

20-CPR-121-(C-12/2010)

### ANNEX

#### Nominal diameters:

Ø 5 - Ø 14 mm

#### Intended use of the product:

The reinforcing steel coils and straightened wires may be used as reinforcement of concrete structures.

The steel coils and straightened wires can be taken into account as products in ductility class A with  $R_e (f_{yk}) = 550$  MPa declared yield strength calculated from nominal cross-section at design works and strength calculations, according to Annex C of standard no. MSZ EN 1992-1-1:2010 (EUROCODE 2).

The steel coils and straightened wires can be taken into account with the tensile performances of B55.50 (MSZ 982:1987) steel.

Alapvető tulajdonságok		Teljesítmény
Yield strength, $R_e$ [MPa] <sup>1) 2)</sup>		≥ 550 (characteristic value) ≥ 533 (individual value)
Stress ratio, $R_m / R_e$ <sup>1)</sup>		≥ 1,05 (characteristic value) ≥ 1,03 (individual value)
Yield ratio, $R_{e,act} / R_{e,nom}$ <sup>1)</sup>		≤ 1,30 (individual value)
Extension, $A_{gt}$ [%]		≥ 2,5 (characteristic value) ≥ 2,25 (individual value)
Tensile strength, $R_m$ [MPa] <sup>2)</sup>		≥ 578 (individual value)
Elongation, $A_5$		≥ 10,0 % (average value)
Rib geometry	- $a_m$ [mm]	0,03·d – 0,15·d
	- $\beta$ [°]	between 35° and 75°
	- $\Sigma e_i$ [mm]	≤ d· $\pi/4$
	- c [mm]	0,4·d – 1,5·d
	- fR, minimum (individual value)	d ≤ 6 mm: 0,035 6 mm < d ≤ 12 mm: 0,040 d > 12 mm: 0,056
bending test 180 degrees, without crack		d ≤ 16 mm: 3d with max mandrel diameter
bending test 90 degrees, re-bending 20 degrees		d ≤ 16 mm: 5d with max mandrel diameter
Tolerance from nominal cross-section / mass per metre [kg/m <sup>3</sup> ], deviance from nominal value [%]		d ≤ 8 mm: ± 6,0 d > 8 mm: ± 4,5
Carbon equivalent value <sup>a)</sup> $C_{eq}$ [%] - cast analysis - product analysis		≤ 0,50 ≤ 0,52
Cast analysis	$C^a$ ; S; P; $N_2^b$ ; Cu	≤ 0,22; ≤ 0,050; ≤ 0,050; ≤ 0,012; ≤ 0,80
Product analysis	$C^a$ ; S; P; $N_2^b$ ; Cu	≤ 0,24; ≤ 0,055; ≤ 0,055; ≤ 0,014; ≤ 0,85
Reaction to fire		A1

<sup>1)</sup>  $R_e = R_{eH}$  (upper yield strength), or  $R_e = R_{p0,2}$  (proof strength) in case if upper yield strength ( $R_{eH}$ ) does not occur.

<sup>2)</sup> Calculated with nominal cross section.

<sup>3)</sup> Evaluation was made with 180° bending test.

<sup>a)</sup> It is allowed to exceed the highest allowed mass percentage value of carbon by 0,03, if carbon equivalent value is reduced by 0,02 mass percentage.

<sup>b)</sup> Higher nitrogen content is acceptable, if content of nitrogen-fixing elements is sufficient.

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wires in steel quality B500A (MSZ EN 10027-1:2017)**

with product performance and intended use shown in the annex as page 2/2 of this certificate and produced by

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**CERTIFICATE OF CONSTANCY OF PERFORMANCE**  
**20-CPR-122-(C-12/2010)**  
**ANNEX**

**Nominal diameters:**

Ø 5 - Ø 12 mm

**Intended use of the product:**

The reinforcing steel welded meshes may be used as reinforcement of concrete structures.

The steel welded meshes can be taken into account as products in ductility class A with  $R_e (f_{yk}) = 500$  MPa declared yield strength calculated from nominal cross-section at design works and strength calculations, according to Annex C of standard no. MSZ EN 1992-1-1:2010 (EUROCODE 2).

The steel welded meshes can be taken into account with the tensile performances of B55.50 (MSZ 982:1987) steel.

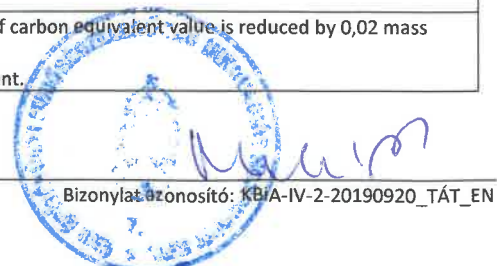
Alapvető tulajdonságok		Teljesítmény
Yield strength, $R_e$ [MPa] <sup>1) 2)</sup>		≥ 500 (characteristic value) ≥ 485 (individual value)
Stress ratio, $R_m / R_e$ <sup>1)</sup>		≥ 1,05 (characteristic value) ≥ 1,03 (individual value)
Yield ratio, $R_{e,act} / R_{e,nom}$ <sup>1)</sup>		≤ 1,30 (individual value)
Extension, $A_{gt}$ [%]		≥ 2,5 (characteristic value) ≥ 2,00 (individual value)
Tensile strength, $R_m$ [MPa] <sup>2)</sup>		≥ 560 (individual value)
Elongation, $A_s$		≥ 10,0 % (average value)
Rib geometry	- $a_m$ [mm]	0,03·d - 0,15·d
	- $\beta$ [°]	between 35° and 75°
	- $\Sigma e_i$ [mm]	≤ d· $\pi$ /4
	- c [mm]	0,4·d - 1,5·d
	- $f_R$ , minimum (individual value)	d ≤ 6 mm: 0,035 6 mm < d ≤ 12 mm: 0,040
Shear strength [MPa]		≥ 0,25· $R_e$
Shear force [kN]		≥ 0,25· $R_e$ · $A_n$
bending test 180 degrees, without crack		d ≤ 16 mm: 3d with max mandrel diameter
bending test 90 degrees, re-bending 20 degrees		d ≤ 16 mm: 5d with max mandrel diameter
Tolerance from nominal cross-section / mass per metre [kg/m <sup>3</sup> ], deviance from nominal value [%]		d ≤ 8 mm: ± 6,0 d > 8 mm: ± 4,5
Welded mesh sizes	wire diameter ratio	$d_{min} \geq 0,6 d_{max}$
	tolerance on width and length	± 25 mm, ± 0,5% (the bigger)
	pitch size (P)	≥ 50 mm
	tolerance on pitch size	± 15 mm, ± 7,5% (the bigger)
	overhang (u)	≥ 25 mm (nominals)
Carbon equivalent value <sup>a)</sup> , $C_{eq}$ [%]		
- cast analysis		≤ 0,50
- product analysis		≤ 0,52
Cast analysis	$C^a$ ; S; P; $N_2^b$ ; Cu	≤ 0,22; ≤ 0,050; ≤ 0,050; ≤ 0,012; ≤ 0,80
	$C^a$ ; S; P; $N_2^b$ ; Cu	≤ 0,24; ≤ 0,055; ≤ 0,055; ≤ 0,014; ≤ 0,85
Reaction to fire		A1

<sup>1)</sup>  $R_e = R_{eH}$  (upper yield strength), or  $R_e = R_{p0,2}$  (proof strength) in case if upper yield strength ( $R_{eH}$ ) does not occur.  
<sup>2)</sup> Calculated with nominal cross section.  
<sup>3)</sup> Evaluation was made with 180° bending test.  
<sup>a)</sup> It is allowed to exceed the highest allowed mass percentage value of carbon by 0,03, if carbon equivalent value is reduced by 0,02 mass percentage.  
<sup>b)</sup> Higher nitrogen content is acceptable, if content of nitrogen-fixing elements is sufficient.

Issue: 3.

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## CERTIFICATE OF CONSTANCY OF PERFORMANCE

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In compliance with Government decree no. 275/2013. (issued on 16th July) this certificate applies to the construction product

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**CERTIFICATE OF CONSTANCY OF PERFORMANCE**  
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**ANNEX**

**Nominal diameters:**

Ø 5 - Ø 10 mm

**Intended use of the product:**

The reinforcing steel welded meshes may be used as reinforcement of concrete structures.

The steel welded meshes can be taken into account as products in ductility class A with  $R_e (f_{yk}) = 550$  MPa declared yield strength calculated from nominal cross-section at design works and strength calculations, according to Annex C of standard no. MSZ EN 1992-1-1:2010 (EUROCODE 2).

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Alapvető tulajdonságok		Teljesítmény
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Yield ratio, $R_{e,act} / R_{e,nom}$ <sup>1)</sup>		≤ 1,30 (individual value)
Extension, $A_{gt}$ [%]		≥ 2,5 (characteristic value) ≥ 2,25 (individual value)
Tensile strength, $R_m$ [MPa] <sup>2)</sup>		≥ 578 (individual value)
Elongation, $A_5$		≥ 10,0 % (average value)
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	- $\beta$ [°]	between 35° and 75°
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	- fR, minimum (individual value)	d ≤ 6 mm: 0,035 6 mm < d ≤ 12 mm: 0,040
Shear strength [MPa]		≥ 0,25· $R_e$
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Reaction to fire		A1

<sup>1)</sup>  $R_e = R_{eH}$  (upper yield strength), or  $R_e = R_{p0,2}$  (proof strength) in case if upper yield strength ( $R_{eH}$ ) does not occur.

<sup>2)</sup> Calculated with nominal cross section.

<sup>3)</sup> Evaluation was made with 180° bending test.

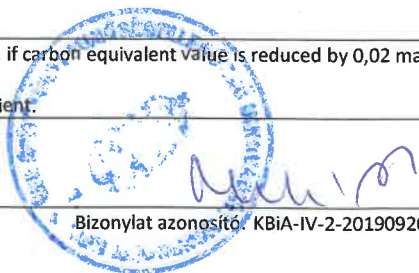
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