

DECLARATION OF PERFORMANCE

1. Unique identification code of the product-type:

CELSAMAX Weldable, ribbed, hot rolled reinforcing steel in coils in steel quality B500SP (PN-H-93220:2018 and MSZ/T 339:2012.03) with  $R_e \geq 500$  MPa declared yield strength calculated from nominal cross-section, in nominal diameters  $\varnothing 10, \varnothing 12, \varnothing 14, \varnothing 16$  mm

2. Type, batch or serial number or any other element allowing identification of the construction product according to government decree no. 275/2013 (issued on 16<sup>th</sup> July):

Rolling mark applied on the product: 1-17

3. Intended use or uses of the construction product, in accordance with the relevant technical approval, as foreseen by the manufacturer:

The reinforcing steel products may be used as reinforcement of concrete structures according to EN 10080:2005, in steel quality B500SP (PN-H-93220:2018 and MSZ/T 339:2012.03).

The steel bars can be taken into account with the parameters of B 60.50 (MSZ 339:1987) steel by performing diagnostic works on building designed in accordance with withdrawn standards no. MSZ 15022:1986 and no. MSZ 15022:1986/1M:1992.

The steel bars can be taken into account as product in ductility class C with  $R_{eH} = 500$  MPa declared yield strength calculated from nominal cross-section at design works and strength calculations, according to Annex C of standard no. EN 1992-1-1:2004 + EN 1992-1-1:2004/ AC:2010 (EUROCODE 2)..

4. Name, registered trade name or registered trade mark and contact address of the manufacturer:

CELSA "Huta Ostrowiec" Sp. z o.o.  
ul. Samsonowicza 2, PL-27-400 Ostrowiec Świętokrzyski, Poland

5. System or systems of assessment and verification of constancy of performance of the construction product:  
System (1+)

6. ÉMI Non-profit Ltd. for Quality Control and Innovation In Building, H-2000 Szentendre, Dózsa György út 26, Hungary, who issued the National Technical Assessment no. A-80/2017 dated at 29.07.2019 is designated body who performed:

- the determination of product type
- the audit tests of random chosen samples,
- the initial inspection of the factory and factory production control,
- the continuous surveillance, verification and assessment of the factory production control in System (1+), and issued the Certificate of Conformity for the product with no. 20-CPR-249-(C-4/2007) dated at 05.02.2020

7. Declared performance

Essential characteristics	Performance		Applied test and product standard	Technical specification
	B500SP	B500C		
Yield or proof strength $R_{eH}$ or $R_{p0.2}$ (MPa)	500+625 (characteristic)	$\geq 500$ (characteristic) $\geq 485$ (individual)	MSZ EN 1992-1-1:2010  MSZ EN 10080:2005	A-80/2017 számú, 29.07.2019 dátumú Nemzeti Műszaki Értékelés
Tensile strength $R_m$ (MPa)	-	$\geq 600$ MPa (characteristic) $\geq 582$ MPa (individual)		
Stress ratio, $R_m/R_e$	1,15+1,35 (characteristic)	1,15+1,35 (characteristic) 1,13+1,38 (individual)		
Elongation, $A_{gt}$ (%)	$\geq 8$ (characteristic)	$\geq 7,5$ (characteristic) $\geq 6,75$ (individual)		
Elongation, $A_5$ (%)	$\geq 16$ (average)	$\geq 18$ (average)		
Bonding strength (fR) (Geometry of ribs)	$h$ [mm] = 0,03·d – 0,15·d $\beta_1$ [°] $\leq 75^\circ$ $\beta_2$ [°] $\geq 45^\circ$ $\beta_1 - \beta_2$ [°] $\geq 10^\circ$ c (mm) 0,4·d – 1,2·d $f_{R, \text{minimum}}$ d = 8 mm: 0,045 8 mm < d ≤ 10 mm: 0,052 d > 10 mm: 0,056	$h$ [mm] = 0,03·d – 0,15·d $\beta$ [°] 35° ÷ 75° c (mm) 0,4·d – 1,2·d $f_{R, \text{minimum}}$ 8 mm < d ≤ 12 mm: 0,040 d > 12 mm: 0,056	MSZ/T 339:2012.03 MSZ 339:1987 PN-H-93220:2018 EN ISO 15630-1:2019	
Bendability	bending 90 degrees, re-bending 20 degrees d ≤ 12: 5d; 12 < d ≤ 16: 6d; d > 16: 8d	bending 180 degrees, without crack d ≤ 16: 3d d > 16: 6d	MSZ EN ISO 6892-1:2010	
Reaction to fire	A1			

Essential characteristics	Performance		Applied test and product standard	
	B500SP	B500C		
Tolerances from nominal cross-section (%)	$d \leq 8: \pm 6,0$ $d > 8: \pm 4,5$			
Fatigue	$n \geq 2 \cdot 10^6$ $\sigma_{max} (MPa) = 300$ $2\sigma_A (MPa) = 150$		MSZ EN 1992-1-2010	
Cycling tests	$n \geq 3$ $f [Hz] = 0,5 - 3$		MSZ EN 10080:2005	
Weld metal bend test for 150°, without cracks in the transition zone	-	$d \geq 16 \text{ mm:}$ 3d mandrel	MSZ/T 339:2012.03	A-80/2017 számú,
Impact strength on 0 °C-on, KV (J) $d \geq 16 \text{ mm}$	-	average $\geq 28$ individual value $\geq 21$ (75%)	MSZ 339:1987	29.07.2019 dátumú Nemzeti
Weldability ( $C_{eq}$ ) - cast analysis - product analysis	-	$\leq 0,50$ $\leq 0,52$	PN-H-93220:2018	Műszaki Értékelés
Cast analysis	C; S; P; N2; Cu	$\leq 0,22; \leq 0,050; \leq 0,050;$ $\leq 0,012; \leq 0,80$	EN ISO 15630-1:2019	
Product analysis	C; S; P; N2; Cu	$\leq 0,24; \leq 0,055; \leq 0,055;$ $\leq 0,014; \leq 0,85$	MSZ EN ISO 6892-1:2010	

8. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 7.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Dyrektor ds. Jakości ZNYY

Stanisław Klusek

Ostrowiec Świętokrzyski, 05.02.2020

(Stanisław Klusek)  
(Quality Manager of RPP)