



HIGH PERFORMANCE REINFORCEMENT PRODUCTS

## PRESTATIEVERKLARING No. DoP-HRC400-23.07

Unieke identificatiecode van het producttype:	<b>HRC400 series wapeningskoppeling (HRC410/420 standaardkoppeling, HRC410/490 positiekoppeling)</b>		
Beoogd gebruik:	<b>Mechanische verbinding van betonstaal</b>		
Fabrikant:	<b>HRC Europe, Lierstranda 107, N-3414 Lierstranda, Norway</b>		
Systeem/systemen ter beoordeling en controle van de prestatiebestendigheid:	<b>Systeem 1+</b>		
Europees beoordelingsdocument:	<b>EAD 160129-00-0301</b>		
Europese technische beoordeling:	<b>ETA-22/0573</b>		
Technische beoordelingsinstantie:	<b>SINTEF (NB 1071)</b>		
Aangemelde instantie:	<b>Kontrollrådet (NB 1111)</b>		
Aangegeven prestaties:			
	<b>Belangrijkste kenmerken</b>	<b>Prestatie</b>	<b>Geharmoniseerde technische specificatie</b>
	Sterkte onder statische of quasi-statische belasting Slip onder lasten Slip na het ontlasten Vermoeiingssterkte (Wöhlercurve met specifiek gedefinieerd k1 of k2) Sterkte onder lage cyclusbelasting (seismische actie)	zie ETA-22/0573, Annex C	EAD 160129-00-0301
	Reactie bij brand	Klasse A1	
De prestatie van het product komt overeen met de gecertificeerde prestatie. Verantwoordelijk voor de opstelling van de prestatieverklaring is alleen de fabrikant. Ondertekend voor de fabrikant en namens de fabrikant door:			
Lisette Berg, Managing Director (Sign.) Lier, 03.07.2023			



**Annex to DoP-HRC400-23.07:**

HRC400 Series Rebar Couplers (B500B and B500C) – essential characteristics acc. ETA-22/0573, Annex C

Coppler type	Nominal Rebar diameter Ø [mm]	Resistance to static or quasi static loading		Slip		Fatigue strength <sup>5)</sup> (S-N-curve with specific defined k <sub>1</sub> and k <sub>2</sub> )			Resistance to low cycle loading (seismic action)			Failure mode <sup>8)</sup>
		Failure of rebar  f <sub>u,min,bar,outside</sub> <sup>1)</sup> [MPa]	Failure of coupler  f <sub>u,min,coupler</sub> <sup>2)</sup> [MPa]	under loading  S <sub>1</sub> <sup>3)</sup> [mm]	after loading  S <sub>2</sub> <sup>4)</sup> [mm]	Δσ <sub>Rsk</sub> [MPa]	k <sub>1</sub>	k <sub>2</sub>	u <sub>20</sub> <sup>6)</sup> [mm]	Ultimate tensile load, F <sub>u,min</sub> <sup>7)</sup>		
										B500B [kN]	B500C [kN]	
Standard Coupler HRC 410/420	12	B500B: 540 B500C: 575	> 850	< 0,06	< 0,10	49 (N = 10 <sup>7</sup> ) 69 (N = 2 · 10 <sup>6</sup> )	4,6	8,3	0,2	61,1	65,0	Ductile rupture of the rebar outside splice
	16		> 850							108,6	115,6	
	20		> 850							169,6	180,6	
	25		> 850							265,1	282,3	
	32		> 740							434,3	462,4	
	40		> 850							678,6	722,6	
Positional Coupler HRC 410/490	25	B500B: 540 B500C: 575	> 670	< 0,10	< 0,10	49 (N = 10 <sup>7</sup> ) 69 (N = 2 · 10 <sup>6</sup> )	4,6	8,3	0,2	265,1	282,3	Ductile rupture of the rebar outside splice
	32									434,3	462,4	
	40									678,6	722,6	

1) f<sub>u,min,bar,outside</sub> according to EN 1992-1-1, Annex C.1:

For B500B: f<sub>u,min,bar,outside</sub> = k<sub>B500B</sub> · f<sub>yk</sub> = 1,08 · 500 MPa = 540 MPa

For B500C: f<sub>u,min,bar,outside</sub> = k<sub>B500C</sub> · f<sub>yk</sub> = 1,15 · 500 MPa = 575 MPa

Failure loads are determined by the strength of the parent rebar, not the HRC400 mechanical coupler.

The full specified elongation A<sub>gt</sub> of the rebar can be developed, according to EN 1992-1-1, Annex C.1.

2) f<sub>u,min,coupler</sub> = minimum rebar stress equivalent to failure of the coupler. Values from test results with larger rebar than the coupler are intended for ("oversized rebar"). The full actual elongation A<sub>gt,act</sub> of the intended rebar size will be developed.

3) Slip across the mechanical splice under loading at 0,6 · f<sub>yk</sub> = 0,6 · 500 MPa = 300 MPa

4) Slip across the mechanical splice after unloading from 0,6 · f<sub>yk</sub> to a load level of 0,02 · f<sub>yk</sub> = 0,02 · 500 MPa = 10 MPa

5) Fatigue strength Δσ<sub>Rsk</sub> for S-N-curve with specific defined stress exponents k<sub>1</sub> and k<sub>2</sub>

6) u<sub>20</sub> = Residual max deformation

7) F<sub>u,min</sub> = A<sub>s,nom,bar,outside</sub> · f<sub>u,min,bar,outside</sub> = π/4 · Ø<sup>2</sup> · f<sub>u,min,bar,outside</sub>

8) The actual failure loads are determined by the strength of the parent rebar, not the HRC400 couplers. Splices of rebar with lower/higher actual tensile strength will therefore achieve lower/higher actual capacities than given in the table. The failure mode remains unchanged: ductile rupture of the parent rebar.