sistemi di fissaggio BOSSONG®
BOSSONG S.p.A. Via Enrico Fermi, 51 (Z.I.2) - 24050 GRASSOBBIO (Bergamo) Italy
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FASTENING SYSTEMS SYSTEMES DE FIXATION BEFESTIGUNGSSYSTEME SISTEMAS DE FIJACIÒN

CE

DECLARATION OF PERFORMANCE
According to Construction Product Regulation n° 305/2011

DoP N°11/0344

1. Unique identification code of the product-type:

BCR EPOXY 21

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):

BCR + content in ml+ EPOXY 21. Example: BCR 470 EPOXY 21

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

Generic type and use		Bonded anchor for anchorage of threaded rod.						
Size covered		M8	M10	M12	M16	M20	M24	M27	M30
hef [mm]	**min**	60	60	70	80	90	96	110	120
	max	160	200	240	320	400	480	540	600
		Intermediate depths are included.						
Base material and strength class		Reinforced or unreinforced normal weight concrete of strength class C20/25 at minimum to C50/60 at maximum according to EN 206-1.						
Base material condition		Cracked (from M12 to M24) and non-cracked concrete (from M8 to M30). Seismic condition: category C2 (from M16 to M24)						
Anchor metal material and corresponding environmental exposure		Threaded rods: a) Carbon galvanized steel class 5.8 and 8.8 according to EN ISO 898-1 for dry internal conditions. b) Stainless steel A4-70 and A4-80 according to EN ISO 3506 for dry internal conditions, external atmospheric exposure (including industrial and marine environment) or exposure in permanently damp internal conditions if no particular aggressive conditions exist. c) High resistant corrosion stainless steel class 70 according to EN ISO 3506 for all conditions.						
		Nuts and washers: Corresponding to anchor rod material above mentioned for the different environmental exposures.						
Type of loading		Static, quasi-static and seismic loading (Seismic category C2).						
Service temperature range		a) -40°C to +40°C (max. short term temperature +40°C and max. long term temperature +24°C), b) -40°C to +80°C (max. short term temperature +80°C and max. long term temperature +50°C).						
Use category		Category 1 and 2: dry and wet concrete and flooded hole. Overhead installation is allowed. Perforation with hammer drilling machine.						

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):

Bossong S.p.A. - via Enrico Fermi 49/51 - 24050 Grassobbio (Bg) – Italy – www.bossong.com

Cap.Soc. € 520.000
S.V. € 260.000
P.IVA IT 00227840162
R.E.A. BG n.98000
Iscr.Reg.Impr. BG n. 00227840162

BPU – Banca Popolare di Bergamo
Agenzia di Longuelo Via Mattioli, 69
ABI 5428 CAB 11103 C/C 220
IBAN:
IT70 C054 2811 1030 0000 0000 220

Deutsche Bank S.p.A.
Sede Bergamo Via Camozzi,82
ABI 3104 CAB 11100 C/C13030
IBAN:
IT 76 J 03104 11100 000000013030

ASSOCIATO MEMBER OF ECAP assorestauro
Numero Verde 800121962

5. Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2):
Not applicable

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:
System 1

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard:
Not applicable

8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:
ETA-Danmark A/S issued ETA-11/0344 on the basis of ETAG 001 part 5. TZUS (n°1020) performed: the determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product; the initial inspection of the factory and of the factory production control; the continuous surveillance; assessment and approval of the factory production control; under system 1 and issue the certificate of conformity n° 1020-CPR-090-043637.

9. Declared performance:

HARMONIZED TECHNICAL SPECIFICATION: ETAG 001 PART 5									
ESSENTIAL CHARACTERISTICS		**PERFORMANCE ACCORDING TO ETA-11/0344**							
Installation parameters		**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
d [mm]		8	10	12	16	20	24	27	30
d_0 [mm]		10	12	14	18	24	28	30	35
d_{fix} [mm]		9	12	14	18	22	26	29	33
h_1 [mm]		h_{ef} + 5 mm							
h_{min} [mm]		h_{ef} + 30 mm; ≥ 100 mm			h_{ef} + 2d_0				
T_{inst} [Nm]		10	20	40	80	130	200	270	300
t_{fix} [mm]	Min	> 0							
	Max	≤ 1500 mm							
S_{min} [mm]		40	50	60	80	100	120	135	150
C_{min} [mm]		40	50	60	80	100	120	135	150
γ_2 [-] Category 1		1,00							
γ_2 [-] Category 2		1,20							
Resistance for tensile load Resistance for combined pullout and concrete cone failure		**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
$\tau_{Rk,ucr}$ [N/mm²] concrete C20/25 Temperature range -40°C/+40°C (T_{mlp} = 24°C)		12,0	11,0	11,0	11,0	10,0	10,0	10,0	10,0
$\tau_{Rk,ucr}$ [N/mm²] concrete C20/25 Temperature range -40°C/+80°C (T_{mlp} = 50°C)		9,0	8,5	8,5	8,5	7,0	7,0	7,0	7,0
$\psi_{c,ucr}$ C30/37 [-]		1,08							
$\psi_{c,ucr}$ C40/50 [-]		1,15							
$\psi_{c,ucr}$ C50/60 [-]		1,19							
$\tau_{Rk,cr}$ [N/mm²] concrete C20/25 Temperature range -40°C/+40°C (T_{mlp} = 24°C)		-	-	7,0	7,0	7,0	7,0	-	-
$\tau_{Rk,cr}$ [N/mm²] concrete C20/25 Temperature range -40°C/+80°C (T_{mlp} = 50°C)		-	-	5,5	5,5	5,5	5,5	-	-
$\psi_{c,cr}$ C30/37 [-]		1,00							
$\psi_{c,cr}$ C40/50 [-]		1,00							
$\psi_{c,cr}$ C50/60 [-]		1,00							

HARMONIZED TECHNICAL SPECIFICATION: ETAG 001 PART 5								
ESSENTIAL CHARACTERISTICS	**PERFORMANCE ACCORDING TO ETA-11/0344**							
Resistance for tensile load **Resistance for splitting failure**	**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
$S_{cr,sp}$ [mm]	se h = h_{min} - $S_{cr,sp}$ = 4 h_{ef} se h_{min} ≤ h < 2 h_{ef} - $S_{cr,sp}$ = interpolate value se h ≥ 2 h_{ef} - $S_{cr,sp}$ = 2 h_{ef}							
$C_{cr,sp}$ [mm]	0,50 $S_{cr,sp}$							
Resistance for shear load **Resistance for concrete pry-out failure**	**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
k [-]	2,0							
Displacement under service load **Tensile and Shear load**	**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
F_{unc} [kN] for concrete from C20/25 to C50/60	7,6	9,5	14,3	19,0	23,8	35,7	45,2	54,8
$\delta_{0,unc}$ [mm]	0,29	0,31	0,36	0,37	0,38	0,54	0,67	0,80
$\delta_{\infty,unc}$ [mm]	0,80							
F_{cr} [kN] for concrete from C20/25 to C50/60	-	-	9,5	14,3	19,0	23,8	-	-
$\delta_{0,cr}$ [mm]	-	-	0,36	0,36	0,36	0,36	-	-
$\delta_{\infty,cr}$ [mm]	-	-	1,85				-	-

HARMONIZED TECHNICAL SPECIFICATION: ETAG 001 PART 1 PARAGRAPH 5.2.1	
ESSENTIAL CHARACTERISTICS	**PERFORMANCE**
Reaction to fire	In the final application the thickness of the mortar layer is about 1 to 2 mm and most of the mortar is material classified class A1 according to EC Decision 96/603/EC. Therefore it may be assumed that the bonding material (synthetic mortar or a mixture of synthetic mortar and cementitious mortar) in connection with the metal anchor in the end use application do not make any contribution to fire growth or to the fully developed fire and they have no influence to the smoke hazard.

HARMONIZED TECHNICAL SPECIFICATION: ETAG 001 PART 1 PARAGRAPH 5.2.2 AND TECHNICAL REPORT TR020	
ESSENTIAL CHARACTERISTICS	**PERFORMANCE**
Resistance to fire	NPD

HARMONIZED TECHNICAL SPECIFICATION: ETAG 001 - ANNEX E QUALIFICATION FOR SEISMIC LOAD			
ESSENTIAL CHARACTERISTICS	**PERFORMANCE ACCORDING TO ETA-11/0344**		
Resistance for tensile load Resistance for steel failure (standard threaded rod class 8.8 with A≥12%)	**M16**	**M20**	**M24**
$N_{Rk,seis}$ [kN]	126	196	282
$\gamma_{M,seis}$ [-]	1,50		
Resistance for tensile load Resistance for combined pullout and concrete cone failure	**M16**	**M20**	**M24**
$\tau_{Rk,seis}$ [N/mm²] concrete C20/25 Temperature range -40°C/+40°C (T_{mlp} = 24°C)	2,9	2,8	2,6
$\tau_{Rk,seis}$ [N/mm²] concrete C20/25 Temperature range -40°C/+80°C (T_{mlp} = 50°C)	2,2	2,1	2,0
$\psi_{c,cr}$ C30/37 [-]	1,00		
$\psi_{c,cr}$ C40/50 [-]	1,00		
$\psi_{c,cr}$ C50/60 [-]	1,00		
Resistance for shear load Resistance for steel failure without lever-arm (standard threaded rod class 8.8 with A≥12%)	**M16**	**M20**	**M24**
$V_{Rk,seis}$ [kN]	25	39	56
$\gamma_{M,seis}$ [-]	1,25		

Displacement under tension and shear load in case of performance category C2

Size			**M16**	**M20**	**M24**
Displacement DLS	$\delta_{N,seis(DLS)}$	[mm]	0,26	0,25	0,24
Displacement ULS	$\delta_{N,seis(ULS)}$	[mm]	0,37	0,45	0,56

Size			**M16**	**M20**	**M24**
Displacement DLS	$\delta_{V,seis(DLS)}$	[mm]	2,41	2,39	2,21
Displacement ULS	$\delta_{V,seis(ULS)}$	[mm]	8,30	7,29	7,42

TERMINOLOGY AND SYMBOLS	
d	Diameter of anchor bolt or thread diameter
d_0	Drill hole diameter
d_{fix}	Diameter of clearance hole in the fixture
h_{ef}	Effective anchorage depth
h_1	Depth of the drilling hole
h_{min}	Minimum thickness of concrete member
T_{inst}	Torque moment to installation
t_{fix}	Thickness to be fixed
S_{min}	Minimum allowable spacing
C_{min}	Minimum allowable edge distance
$S_{cr,sp}$	Spacing for ensuring the transmission of the characteristic tensile resistance of a single anchor without spacing and edge effects in case of splitting failure
$C_{cr,sp}$	Edge distance for ensuring the transmission of the characteristic tensile resistance of a single anchor without spacing and edge effects in case of splitting failure
$\tau_{Rk,ucr}$	Characteristic bond resistance in un-cracked concrete class C20/25
$\tau_{Rk,cr}$	Characteristic bond resistance in cracked concrete class C20/25
γ_2	Partial safety factors for installation
$\psi_{c,ucr}$	Increasing factor for un-cracked concrete
$\psi_{c,cr}$	Increasing factor for cracked concrete
k	Factor for concrete edge failure
F	Service load in un-cracked (ucr) or cracked concrete (cr)
δ_0	Short term displacement under service load in un-cracked (uncr) or cracked concrete (cr)
δ_∞	Long term displacement under service load in un-cracked (uncr) or cracked concrete (cr)
seis	Seismic action
NPD	No declared performance

Regolamento REACH n°1907/2006

Estimate customer,
We inform you that in the REACH supply chain our company is classified as DU: Downstream-user.
You can require the safety data sheet of the product to our technical department: tek@bossong.com or you can download the document from our web site www.bossong.com.

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10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. 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:

Name and function	Place and date of issue	Signature
Andrea Taddei **General Manager**	**Grassobbio (Bg) - Italy** **01.08.2022**	

Note: this DoP replace the previous version dated 12.03.2019.