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 Products Regulation n ° 305/2011

DoP N°17/0471

1. Unique identification code of the product-type:

CLS-CE

2. Number of type, batch or serial number or any other element allowing identification of the product to be built in accordance with Article 11, paragraph 4:

CLS + letter for identify the type of head + CE + hole diameter x under-head length
Example. CLS-H CE 8x80 Example. CLS-S CE 10x90 Example. CLS-B CE 6x80

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	Concrete screw													
Size [mm]	6		8			10			12			14		
hef [mm]	31	44	35	43	52	43	60	68	50	67	80	58	79	92
Type and strength of the support	Reinforced or unreinforced normal weight concrete of strength class C20/25 at minimum to C50/60 at maximum according to EN 206-1.													
Condition of the base material	Cracked and non-cracked concrete.													
Anchor metallic material and relative environmental exposure condition	1. Galvanized carbon steel for dry and internal conditions.													
Type of load	• Static and quasi-static load, all sizes and embedment depth. • Used for anchorages with requirements related to resistance for fire, all sizes and embedment depth. • Used for anchorages with seismic actions category C1, sizes from 6 to 14 mm and C2 for sizes 8 to 14													

4. Name, registered trade name or trademark and address of the manufacturer under Article 11, paragraph 5:

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

5. If appropriate, the name and address of the authorized representative whose mandate covers the tasks specified in Article 12, paragraph 2:

Not applicable

6. Systems of assessment and verification of constancy of performance of the construction product systems in Annex V:

System 1

7. In the case of a declaration of performance concerning a construction product falls within the scope of a harmonized standard:

Not applicable

www.bossong.com
bossong.pec@legalmail.it
Cap.Soc. € 520.000
S.V. € 260.000
P.IVA IT 00227840162
R.E.A. BG n.98000
Iscr.Reg.Impr. BG n. 00227840162
UBI Banca S.p.A.
Agenzia di Bergamo Via Mattioli, 69
ABI 03111 CAB 11103 C/C 220
IBAN:
IT 23X 03111 11103 000000000 220
Deutsche Bank S.p.A.
Sede di Bergamo
ABI 3104 CAB 11100 C/C13030
IBAN:
IT 76 J 03104 11100 000000013030

8. In the case of a declaration of performance concerning a construction product for which a European Technical Assessment has been issued:

DIBt releases the ETA-17/0471 on the base of the EAD 330232-01-0601 “Mechanical fasteners for use in concrete”
IFSW (n°2873) performed:
Product-type determination on the basis of type tests (including sampling), type calculations, table values or descriptive documentation of the product; Initial inspection of the production plant and factory production control; Monitoring, evaluation and ongoing verification of factory production control, with attestation system 1 and issued the certificate of conformity No. 2873-CPR-403-1

9. Declared performance:

TECHNICAL SPECIFICATION HARMONIZED: EAD 330232-01-0601																
ESSENTIAL CHARACTERISTICS	**PERFORMANCE ACCORDING TO ETA- ETA-17/0471**															
Installation parameters	**6**		**8**			**10**			**12**			**14**		
d_0 [mm]	6		8			10			12			14		
d_{fix} [mm]	8		12			14			16			18		
h_{min} [mm]	100		100	100	120	100	130	130	120	130	150	130	150	170
h_1 [mm]	45	60	55	65	75	65	85	95	75	95	110	85	110	125
h_{nom} [mm]	40	55	45	55	65	55	75	85	65	85	100	75	100	115
Installation torque for version with connection thread T_{inst} [Nm]	10		20			40			60			80		
Recommended impact screw driver [Nm]	160		300			400			650			650		
S_{min} and C_{min} [mm]	40		40	50	50	50			50	50	70	50	70	70
γ_{inst} [-] or γ_2[-]	1,00													
Resistance for tensile load Resistance for steel failure	**6**		**8**			**10**			**12**			**14**		
$N_{Rk,s}$ [kN]	14		27			45			67			94		
γ_{Ms} [-]	1,50													
Resistance for tensile load Resistance for pull-out failure	**6**		**8**			**10**			**12**			**14**		
$N_{Rk,p}$ [kN] non cracked concrete C20/25	4	9	7.5	12	16	12	20	26	16	Not decisive		Not decisive		
$N_{Rk,p}$ [kN] cracked concrete C20/25	2	4	5	9	12	9	Not decisive		12	Not decisive		Not decisive		
$\psi_{c,uc/cr}$ C30/37 [-]	1,22													
$\psi_{c,ucr/cr}$ C40/50 [-]	1,41													
$\psi_{c,ucr/cr}$ C50/60 [-]	1,55													

TECHNICAL SPECIFICATION HARMONIZED: EAD 330232-01-0601																
ESSENTIAL CHARACTERISTICS	**PERFORMANCE ACCORDING TO ETA-17/0471**															
Resistance for tensile load Resistance for concrete cone failure	**6**		**8**			**10**			**12**			**14**		
h_{ef} [mm]	31	44	35	43	52	43	60	68	50	67	80	58	79	92
$S_{cr,N}$ [mm]	3 x h_{eff}													
$C_{cr,N}$ [mm]	1.5 x h_{eff}													
Factor k_1 cracked	7,7													
Factor k_1 uncracked	11,0													
Resistance for tensile load Resistance for splitting failure	**6**		**8**			**10**			**12**			**14**		
$S_{cr,sp}$ [mm]	120	160	120	140	150	140	180	210	150	210	240	180	240	280
$C_{cr,sp}$ [mm]	60	80	60	70	75	70	90	105	75	105	120	90	120	140
Resistance for shear load Resistance for steel failure without lever-arm	**6**		**8**			**10**			**12**			**14**		
$V_{Rk,s}$ [kN]	7		13,5		17	22,5	34		33,5	42		56		
γ_{Ms} [-]	1,25		1,25			1,25			1,25			1,25		
k_7	0,8		0,8			0,8			0,8			0,8		

TECHNICAL SPECIFICATION HARMONIZED: EAD 330232-01-0601															
ESSENTIAL CHARACTERISTICS	**PERFORMANCE ACCORDING TO ETA-17/0471**														
Resistance for shear load Resistance for steel failure with lever-arm	**6**		**8**			**10**			**12**			**14**			
$M^0_{Rk,s}$ [Nm]	10,9		26			56			113			185			
γ_{Ms} [-]	1,25														
Resistance for shear load Resistance for concrete pry-out failure	**6**		**8**			**10**			**12**			**14**			
k_8 [-]	1		1	1	1	1	2	2	1	2	2	1	2	2	
Resistance for shear load Resistance for concrete edge failure	**6**		**8**			**10**			**12**			**14**			
d_{nom} [mm]	6		8			10			12			14			
l_f [mm]	31	44	35	43	52	43	60	68	50	67	80	58	79	92	
Displacement under service load Tensile load	**6**		**8**			**10**			**12**			**14**			
F_{unc} [kN]	1.9	4.3	3.6	5.7	7.6	5.7	9.5	11.9	7.6	13.2	17.2	10.6	16.9	21.2	
$\delta_{0,unc}$[mm]	0.4	0.6	0.7	0.9	0.5	0.7	1.1	1.0	1.0	1.1	1.2	0.9	1.2	0.8	
$\delta_{\infty,unc}$[mm]	0.4	0.4	0.6	1.0	0.9	0.4	1.2	1.2	1.0	1.2	1.2	0.9	1.2	1.0	
F_{crack} [kN]	0.95	1.9	2.4	4.3	5.7	4.3	7.9	9.6	5.7	9.4	12.3	7.6	12.0	15.1	
$\delta_{0,crack}$ [mm]	0.3	0.6	0.6	0.7	0.8	0.6	0.5	0.9	0.9	0.5	1.0	0.5	0.8	0.7	
$\delta_{\infty,crack}$ [mm]	0.4	0.4	0.6	1.0	0.9	0.4	1.2	1.2	1.0	1.2	1.2	0.9	1.2	1.0	
Displacement under service load for cracked and un-cracked concrete Shear load	**6**		**8**			**10**			**12**			**14**			
F [kN]	3.3		8.6			16.2			20.0			30.5			
δ_0[mm]	1.55		2.7			2.7			4.0			3.1			
δ_∞[mm]	3.10		4.1			4.3			6.0			4.7			

HARMONIZED TECHNICAL SPECIFICATIONS: EAD 330232-01-0601	
ESSENTIAL CHARACTERISTICS	**PERFORMANCE**
Reaction to fire	Class A1 according to EN 13501-1

HARMONIZED TECHNICAL SPECIFICATIONS: EAD 330232-01-0601										
ESSENTIAL CHARACTERISTICS	**PERFORMANCE ACCORDING TO ETA-17/0471**									
Fire resistance at 30 minutes for tensile loads	**6**		**8**			**10**		**12**		**14**
Resistance for steel failure $N_{Rk,s,fi,30}$ [kN]	0.9		2.4			4.4		7.4		10.3
Resistance for pull-out failure $N_{Rk,p,fi,30}$ [kN] concrete from C20/25 to C50/60	0.5	1	1.25	2.25	3	2.25	Not decisive	3	Not decisive	Not decisive
Fire resistance at 60 minutes for tensile loads	**6**		**8**			**10**		**12**		**14**
Resistance for steel failure $N_{Rk,s,fi,60}$ [kN]	0.8		1.7			3.3		5.8		8.2
Resistance for pull-out failure $N_{Rk,p,fi,60}$ [kN] concrete from C20/25 to C50/60	0.5	1	1.25	2.25	3	2.25	Not decisive	3	Not decisive	Not decisive

HARMONIZED TECHNICAL SPECIFICATIONS: EAD 330232-01-0601										
ESSENTIAL CHARACTERISTICS	**PERFORMANCE ACCORDING TO ETA-17/0471**									
Fire resistance at 90 minutes for tensile loads	**6**		**8**			**10**		**12**		**14**
Resistance for steel failure $N_{Rk,s,fi,90}$ [kN]	0.6		1.1			2.3		4.2		5.9
Resistance for pull-out failure $N_{Rk,p,fi,90}$ [kN] concrete from C20/25 to C50/60	0.5	1	1.25	2.25	3	2.25	Not decisive	3	Not decisive	Not decisive
Fire resistance at 120 minutes for tensile loads	**6**		**8**			**10**		**12**		**14**
Resistance for steel failure $N_{Rk,s,fi,120}$ [kN]	0.4		0.7			1.7		3.4		4.8
Resistance for pull-out failure $N_{Rk,p,fi,120}$ [kN] concrete from C20/25 to C50/60	0.4	0.8	1	1.8	2.4	1.8	Not decisive	2.4	Not decisive	Not decisive
Fire resistance: spacing and edge distance	**6**		**8**			**10**		**12**		**14**
$S_{cr,N}$ [mm]	$4 \times h_{eff}$									
$C_{cr,N}$ [mm]	$2 \times h_{eff}$-									
Fire resistance at 30 minutes for shear loads	**6**		**8**			**10**		**12**		**14**
Resistance for steel failure without lever arm $V_{Rk,s,fi,30}$ [kN]	0.9		2.4			4.4		7.3		10.3
Resistance for steel failure with lever arm $M^0_{Rk,s,fi,30}$ [Nm]	0.7		2.4			5.9		12.3		20.4
Fire resistance at 60 minutes for shear loads	**6**		**8**			**10**		**12**		**14**
Resistance for steel failure without lever arm $V_{Rk,s,fi,60}$ [kN]	0.8		1.7			3.3		5.8		8.2
Resistance for steel failure with lever arm $M^0_{Rk,s,fi,60}$ [Nm]	0.6		1.8			4.5		9.7		15.9
Fire resistance at 90 minutes for shear loads	**6**		**8**			**10**		**12**		**14**
Resistance for steel failure without lever arm $V_{Rk,s,fi,90}$ [kN]	0.6		1.1			2.3		4.2		5.9
Resistance for steel failure with lever arm $M^0_{Rk,s,fi,90}$ [Nm]	0.5		1.2			3.0		7.0		11.6
Fire resistance at 120 minutes for shear loads	**6**		**8**			**10**		**12**		**14**
Resistance for steel failure without lever arm $V_{Rk,s,fi,120}$ [kN]	0.4		0.7			1.7		3.4		4.8
Resistance for steel failure with lever arm $M^0_{Rk,s,fi,120}$ [Nm]	0.3		0.9			2.3		5.7		9.4

HARMONIZED TECHNICAL SPECIFICATIONS: EAD 330232-01-0601	
ESSENTIAL CHARACTERISTICS	**PERFORMANCE**
Assessment for seismic action	C1 and C2

CHARACTERISTIC VALUES IN CATEGORY C1							
ESSENTIAL CHARACTERISTICS	**PERFORMANCE ACCORDING TO ETA-17/0471**						
	6		**8**	**10**		**12**	**14**
Embedement depth h_{nom} [mm]	h_{nom}						
	40	55	65	55	85	100	115
Steel failure side in tensile and shear							
$N_{Rk,seismic}$	14		27	45		67	94
$V_{Rk,seismic}$	4,7	5,5	8.5	13,5	15,3	21	22.4
A_5 [%]	≤ 8						
Pull-out							
$N_{Rk,p,seismic}$	2,0	4,0	12	9,0	Not decisive	Not decisive	Not decisive
Concrete cone							
h_{eff} [mm]	31	44	52	68		80	92
$S_{cr,N}$ [mm]	93	132	3 x h_{eff}				
$C_{cr,N}$ [mm]	47	66	1.5 x h_{eff}				
γ_{inst} [-] or γ_2[-]	1,00						
Pry out							
k_8 factor	1		1	2		2	2
Edge failure							
$l_f = h_{eff}$	31	44	52	68		80	92
d_{nom}	6		8	10		12	14

CHARACTERISTIC VALUES IN CATEGORY C2					
ESSENTIAL CHARACTERISTICS	**PERFORMANCE ACCORDING TO ETA-17/0471**				
	8		**10**	**12**	**14**
Embedement depth h_{nom} [mm]	h_{nom}				
	65		85	100	115
Steel failure side in tensile and shear					
$N_{Rk,seismic}$	27		45	67	94
$V_{Rk,seismic\ WITH\ FILLED\ ANNULAR\ GAP}$	9,9		18,5	31,6	40.7
$V_{Rk,seismic\ WITHOUT\ FILLED\ ANNULAR\ GAP}$	10,3		21,9	24,4	23,3
A_5 [%]	≤ 8				
Pull-out					
$N_{Rk,p,seismic}$	2,4		5,4	7,1	10,5
Concrete cone					
h_{eff} [mm]	52		68	80	92
$S_{cr,N}$ [mm]	3 x h_{eff}				
$C_{cr,N}$ [mm]	1.5 x h_{eff}				
γ_{inst} [-] or γ_2[-]	1,00				
Pry out					
k_8 factor	1		2	2	2
Edge failure					
$l_f = h_{eff}$	52		68	80	92
d_{nom}	8		10	12	14

TERMINOLOGY AND SYMBOLS	
d_{nom}	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
N_{Rk}	Characteristic tensile resistance for concrete cone failure for single anchor
$N_{Rk,p}$	Characteristic tensile resistance for pull-out failure for single anchor
$N_{Rk,s}$	Characteristic tensile resistance for steel failure for single anchor
$V_{Rk,s}$	Characteristic shear resistance for steel failure for single anchor
$M^0_{Rk,s}$	Characteristic bending resistance of an individual anchor
γ_{inst} or γ_2	Partial safety factors for installation
γ_{Ms}	Partial safety factors for steel failure mode
$S_{cr,N}$	Spacing for ensuring the transmission of the characteristic tensile resistance of a single anchor without spacing and edge effects in case of concrete cone failure
$C_{cr,N}$	Edge distance for ensuring the transmission of the characteristic tensile resistance of a single anchor without spacing and edge effects in case of concrete cone failure
$S_{cr,sp}$	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
$\psi_{c,ucr}$	Increasing factor for un-cracked concrete
$\psi_{c,cr}$	Increasing factor for cracked concrete
k_1	Factor for concrete cone failure with cracked and uncracked concrete
k_8	Factor for concrete pry-out failure
k_7	Ductility steel factor
l_f	Effective anchorage depth
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)
NPD	No performance declared

Regulamentation REACH n°1907/2006

Estimate customer,
We inform you that in the REACH supply chain our company is classified as DU: Downstream-user.
About the product detailed in the point 1 we confirm you that we don't use in our production substances classified as SVHC according to the Candidate List published on ECHA site web:
http://echa.europa.eu/chem_data/candidate_list_table_en.asp.

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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** **14-11-2022**