sistemi di fissaggio BOSSONG®
BOSSONG S.p.A. Via Enrico Fermi, 51 (Z.I.2) - 24050 GRASSOBBIO (Bergamo) Italy
Tel +39 035 3846 011 - Fax +39 035 3846 012 - www.bossong.com - info@bossong.com
FASTENING SYSTEMS SYSTEMES DE FIXATION BEFESTIGUNGSSYSTEME SISTEMAS DE FIJACIÒN

CE

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

DoP N°25/0938

1. Unique identification code of the product-type:

BCR V PLUS / BCR V PLUS-W / BCR V PLUS-T

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 + V PLUS. Example: BCR 400 V PLUS

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 and rebars						
Size covered		M8 - ϕ8	M10-ϕ10		M12-ϕ12			M16-ϕ16
h_{ef} [mm]	**Category b**	80-160	90-180		100-200			110-200
	Category c*	80 with GC 12x80	85 with GC 15x85	135 with GC 15x135	85 with GC 20x85	135 with GC 15x135	150 with GF 16x150	130-330 with GC 16X330	85 with GC 20x85
	Category d	80	90		100			110
		GC = Plastic sleeve for hollow masonry GF = Metallic sleeve for hollow masonry *Sleeves for threaded rods only						
Base material and strength class		Solid masonry (category b) Hollow masonry (category c) AAC blocks (category d) The resistance class of the masonry mortar must be at least M 2,5 in accordance with EN 998-2:2010 (at least M 5,0 for seismic loads)						
Anchor metal material and corresponding environmental exposure		Threaded rod: X1) Structures subject to dry internal conditions: elements made of galvanized steel (galvanized or hot galvanized) and stainless steel A2, A4 or high corrosion resistance steel (HCR). X2) Structures subject to external atmospheric exposure (including industrial and marine environment) and permanently wet internal conditions, if there are no particular aggressive conditions: Elements made of A4 stainless steel or high corrosion resistance steel (HCR). X3) Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently wet internal conditions, if other particular aggressive conditions exist. Such particularly aggressive conditions are eg. permanent immersion, alternating in sea water or in the sea water spray area, chloride atmosphere of swimming pools or indoor environments with chemical pollution (eg in desulphurisation plants or road tunnels where de-icing materials are used): Elements made of corrosion-resistant steel (HCR) Bars with improved adhesion class B or C according to EN 1992-1-1.						
Type of loading		Static and quasi-static load and seismic load						
Service temperature range		a) from -40°C to +40°C (max. short term temperature +40°C and max. long term temperature +24°C). b) from -40°C to +80°C (max. short term temperature +80°C and max. long term temperature +50°C).						
Use category		Category d/d, w/d and w/w: installation in dry and wet substrate and use in structures subject to dry and wet conditions. Drilling with hammer drilling.						

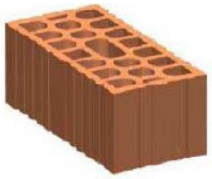
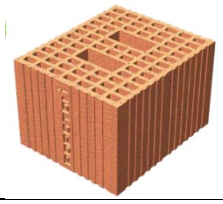
Cap.Soc. € 520.000
S.V. € 260.000
P.IVA IT 00227840162
R.E.A. BG n.98000
Iscr.Reg.Impr. BG n. 00227840162

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

Brick type

Brick n°	Brick name – Use category Density [kg/m³] Dimensions W x L x H [mm]	Brick picture
1	Mattone pieno (b) EN 771-1 Danesi ρ=1560 120 x 250 x 55	
2	Mattone forato (c) EN 771-1 Mattone Doppio UNI ρ=810 190 x 250 x 120	
3	Mattone forato (c) EN 771-1 Poroton P800 ρ=900 300 x 245 x 230	
4	AAC2 (d) EN 771-4 Climagold ρ=300 625 x 200 x 360	
5	AAC5 (d) EN 771-4 Blocco sismico ρ=575 625 x 200 x 300	

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

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

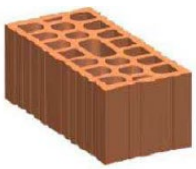
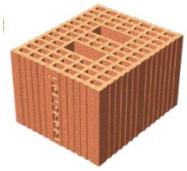
ETA-Denmark A/S issued ETA-25/0938 on the basis of EAD330076-01-0604.

ITB (n°1488) 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° 1488-CPR-1224/W.

9. Declared performance:

HARMONIZED TECHNICAL SPECIFICATION: EAD330076-01-0604				
ESSENTIAL CHARACTERISTICS	**PERFORMANCE ACCORDING TO ETA-25/0938**			
Installation parameters	**M8**	**M10**	**M12**	**M16**
d [mm]	8	10	12	16
d_0 [mm] category b e d (solid masonry - AAC)	10	12	14	18
d_0 [mm] category c (hollow masonry)	12	16	16-22	20-22
Sleeve for use in hollow masonry category c	GC 12x80	GC 15x85 GC 15x135	GC 15x135 GF 16x150 GC 16x330 GC 20x85	GC 20x85
d_{fix} [mm]	9	12	14	18
h_1 [mm]	h_{ef} + 5 mm			
T_{inst} [Nm] category b (solid masonry)	5	8	10	10
T_{inst} [Nm] category c (hollow masonry)	4			
T_{inst} [Nm] category d (block AAC)	2			

Installation parameters	**ϕ 8**	**ϕ 10**	**ϕ 12**	**ϕ 16**
d [mm]	8	10	12	16
d_0 [mm	10	12	14	18
h_1 [mm]	h_{ef} + 5 mm			

Brick	**Use conditions**	**Diameter**	**β factor**	**$\alpha_{N,seis}$ factor**	**$\alpha_{V,seis}$ factor**
Brick n°1 	d/d - w/d - w/w	M8 – M12	0,98	-	-
		M16		0,75	0,41
		ϕ8		0,78	0,54
		ϕ 10 - ϕ 16		-	-
Brick n°2-3  	d/d - w/d - w/w	M8+GC 12x80 M10+GC 15x85 M10+GC 15x135 M12+GC 15x135 M12+GC 16x150 M12+GC 16x330 M12+GC 20x85 M16+GC 20x85	0,98	-	-
Brick n°4-5  	d/d - w/d - w/w	M8 - M16	0,90	-	-

Mattone Danesi

Brick type	Mattone Danesi	
Compressive resistance [N/mm²]	≥ 21	
Brick dimension [mm]	≥ 250 x 120 x 55	
Drilling method	Hammer drilling	

Installation parameter

Diameter	Setting depth [mm]	Edge distance [mm]		Spacing [mm]	
		c_{min}	c_{cr}	s_{min}	$s_{cr,\perp} = s_{cr,\parallel}$
M8	80	50	120	50	240
M10	90	50	135	50	270
M12	100	50	150	50	300
M12	200	50	300	50	600
M16	110	60	165	60	330
M16	200	60	300	60	600

Characteristic values of resistance under tension and shear loads for static action

Diameter	Setting depth [mm]	Category d/d, w/d and w/w Temperature range -40°C/+24°C/+40°C and -40°C/+50°C/+80°C			
		N_{Rk} [kN]		$V_{Rk,b}$ [kN]	
		$c=c_{min} - s=s_{min}$	$c=c_{cr} - s=s_{cr}$	$c=c_{min} - s=s_{min}$	$c=c_{cr} - s=s_{cr}$
M8	80	3,0	3,0	5,0	5,0
M10	90	4,0	3,0	8,5	9,5
M12	100	4,0	5,0	10,5	12,0
M12	200	4,0	5,5	10,0	12,0
M16	110	4,0	5,5	11,5	14,5
M16	200	6,0	7,0	18,0	26,0

1) For design according to TR 054: $N_{Rk} = N_{Rk,p} = N_{Rk,b}$; $N_{Rk,s}$ according to Table C2 Annex C2; Calculation $N_{Rk,pb}$ see TR 054
2) For V_{Rk}, see Annex C2, Table C2; Calculation of $V_{Rk,pb}$ and $V_{Rk,c}$ see TR 054

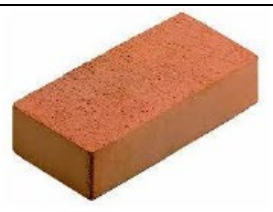
Displacement

Diameter	Setting depth [mm]	Displacement under service load Tensile and shear load					
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
M8	80	0,89	0,11	0,22	1,51	0,29	0,44
M10	90	0,95	0,12	0,24	2,70	0,33	0,50
M12	100	1,43	0,14	0,28	3,50	0,38	0,57
M16	110	1,60	0,18	0,36	4,19	0,41	0,62

Group factor α_g

Configuration	Tensile		Shear parallel to free edge		Shear perpendicular to free edge	
	$\alpha_{g\,\parallel,\,N}$	$\alpha_{g\perp,\,N}$	$\alpha_{g\,\parallel,\,V\,\parallel}$	$\alpha_{g\perp,\,V\,\parallel}$	$\alpha_{g\,\parallel,\,V\perp}$	$\alpha_{g\perp,,\,V\perp}$
$S \geq S_{min}$ and $C \geq C_{min}$	2,0	2,0	2,0	2,0	2,0	2,0
$S \geq S_{cr}$ and $C \geq C_{cr}$	2,0	2,0	2,0	2,0	2,0	2,0

Mattone Danesi

Brick type	Mattone Danesi	
Compressive resistance [N/mm²]	≥ 21	
Brick dimension [mm]	≥ 250 x 120 x 55	
Drilling method	Hammer drilling	

Installation parameter

Diameter	Setting depth [mm]	Edge distance [mm]		Spacing [mm]	
		c_{min}	c_{cr}	s_{min}	$s_{cr,\perp} = s_{cr,\parallel}$
ϕ8	80	50	120	50	240
ϕ10	90	50	135	50	270
ϕ12	100	50	150	50	300
ϕ16	110	60	165	60	330
ϕ8	160	50	240	50	480
ϕ10	180	50	270	50	540
ϕ12	200	50	300	50	600
ϕ16	200	60	300	60	600

Characteristic values of resistance under tension and shear loads for static action

Diameter	Setting depth [mm]	Category d/d, w/d and w/w Temperature range -40°C/+24°C/+40°C and -40°C/+50°C/+80°C			
		N_{Rk} [kN]		$V_{Rk,b}$ [kN]	
		$c=c_{min} - s=s_{min}$	$c=c_{cr} - s=s_{cr}$	$c=c_{min} - s=s_{min}$	$c=c_{cr} - s=s_{cr}$
ϕ8	80	2,5	2,5	5,0	5,0
ϕ10	90	3,5	3,5	8,5	8,5
ϕ12	100	4,0	4,0	11,0	12,0
ϕ16	110	4,5	5,5	11,5	12,5
ϕ8	160	3,5	4,5	6,0	7,0
ϕ10	180	3,5	4,5	10,0	11,0
ϕ12	200	5,0	5,5	14,0	14,0
ϕ16	200	6,0	6,5	17,0	21,0

1) For design according to TR 054: $N_{Rk} = N_{Rk,p} = N_{Rk,b}$; $N_{Rk,s}$ according to Table C2 Annex C2; Calculation $N_{Rk,pb}$ see TR 054
2) For V_{Rk}, see Annex C2, Table C2; Calculation of $V_{Rk,pb}$ and $V_{Rk,c}$ see TR 054

Displacement

Diameter	Setting depth [mm]	Displacement under service load Tensile and shear load					
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
ϕ8	80	0,79	0,12	0,25	1,43	0,32	0,48
ϕ10	90	1,06	0,13	0,27	2,44	0,35	0,53
ϕ12	100	1,28	0,15	0,35	3,43	0,41	0,62
ϕ16	110	1,63	0,15	0,38	3,67	0,45	0,68

Group factor α_g

Configuration	Tensile		Shear parallel to free edge		Shear perpendicular to free edge	
	$\alpha_{g\,\parallel,N}$	$\alpha_{g\perp,N}$	$\alpha_{g\,\parallel,V\,\parallel}$	$\alpha_{g\perp,V\,\parallel}$	$\alpha_{g\,\parallel,V\perp}$	$\alpha_{g\perp,,V\perp}$
$S \geq S_{min}$ and $C \geq C_{min}$	2,0	2,0	2,0	2,0	2,0	2,0
$S \geq S_{cr}$ and $C \geq C_{cr}$	2,0	2,0	2,0	2,0	2,0	2,0

Mattone Danesi

Brick Type	Mattone Danesi	
Compressive resistance [N/mm²]	≥ 21	
Brick dimension [mm]	≥ 250 x 120 x 55	
Drilling method	Hammer drilling	

Installation parameter

Diameter	Setting depth [mm]	Edge distance [mm]		Spacing [mm]	
		c_{min}	c_{cr}	s_{min}	$s_{cr,\perp} = s_{cr,II}$
ϕ8	160	50	240	50	480
M16	200	60	300	60	600

Characteristic values of resistance under tension and shear loads for seismic action

Diameter	Setting depth [mm]	Category d/d, w/d and w/w Temperature range -40°C/+24°C/+40°C and -40°C/+50°C/+80°C			
		N_{Rk} [kN]		$V_{Rk,b}$ [kN]	
		$C=C_{min} - S=S_{min}$	$C=C_{cr} - S=S_{cr}$	$C=C_{min} - S=S_{min}$	$C=C_{cr} - S=S_{cr}$
ϕ8	160	3,0	3,9	3,45	3,9
M16	200	3,2	5,3	7,4	12,2

Displacement

Diameter	Setting depth [mm]	Displacement factors	
		$\delta_{N,eq}$ [mm/kN]	$\delta_{V,eq}$ [mm/kN]
ϕ8	160	0,04	0,55
M16	200	0,03	0,37

Group factor α_g

Configuration	Tensile		Shear parallel to free edge		Shear perpendicular to free edge	
	$\alpha_{g\,II,\,N}$	$\alpha_{g\perp,\,N}$	$\alpha_{g\,II,\,V\,II}$	$\alpha_{g\perp,\,V\,II}$	$\alpha_{g\,II,\,V\perp}$	$\alpha_{g\perp,,\,V\perp}$
$S \geq S_{min}$ and $C \geq C_{min}$	2,0	2,0	2,0	2,0	2,0	2,0
$S \geq S_{cr}$ and $C \geq C_{cr}$	2,0	2,0	2,0	2,0	2,0	2,0

Factor for annular gap

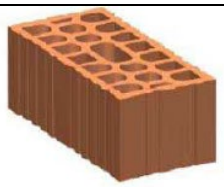
Reduction factor for annular gap			
Without annular gap filling	αgap	[-]	0,5
With annular gap filling	αgap	[-]	1,0

Characteristic tensile and shear resistance for threaded rods and rebars for steel failure under seismic action

Size			**M16**
Steel failure – characteristic tension resistance			
Steel class 4.8	$N_{Rk,s,SEIS}$	[kN]	47,3
Steel class 5.8	$N_{Rk,s,SEIS}$	[kN]	58,5
Steel class 8.8	$N_{Rk,s,SEIS}$	[kN]	94,5
Stainless steel A2, A4, HCR class 50	$N_{Rk,s,SEIS}$	[kN]	58,5
Stainless steel A2, A4, HCR class 70	$N_{Rk,s,SEIS}$	[kN]	82,5
Stainless steel A4, HCR class 80	$N_{Rk,s,SEIS}$	[kN]	94,5
Steel failure – characteristic shear resistance			
Steel class 4.8	$V_{Rk,s,SEIS}$	[kN]	12,7
Steel class 5.8	$V_{Rk,s,SEIS}$	[kN]	16,0
Steel class 8.8	$V_{Rk,s,SEIS}$	[kN]	25,8
Stainless steel A2, A4, HCR class 50	$V_{Rk,s,SEIS}$	[kN]	16,0
Stainless steel A2, A4, HCR class 70	$V_{Rk,s,SEIS}$	[kN]	22,6
Stainless steel A4, HCR class 80	$V_{Rk,s,SEIS}$	[kN]	25,8
Size			**ϕ8**
Steel failure – characteristic tension and shear resistance			
Reinforced bar type B450C	$N_{Rk,s,SEIS}$	[kN]	21,0
	$V_{Rk,s,SEIS}$	[kN]	7,3

Mattone DOPPIO UNI

Brick Type	Mattone DOPPIO UNI
Compressive resistance [N/mm²]	≥ 14,0
Brick dimension [mm]	≥ 190 x 250 x 120
Drilling method	Rotary drilling



Installation parameter

Diameter	Setting depth [mm]	Sleeve dxL [mm]	Edge distance [mm]		Spacing [mm]	
			c_{min}	c_{cr}	$S_{min,II} = S_{cr,II}$	$S_{min,\perp} = S_{cr,\perp}$
M8	80	12x80	100	100	250	120
M10	85	15x85	100	100	250	120
M10	135	15x135	100	100	250	120
M12	135	15x135	100	100	250	120
M12	150	16x150	100	100	250	120
M12	330	16x330	100	100	250	120
M12	85	20x85	100	100	250	120
M16	85	20x85	100	100	250	120

Characteristic resistances for tensile and shear load

Diameter	Setting depth [mm]	Sleeve dxL [mm]	Category d/d, w/d and w/w Temperature range -40°C/+24°C/+40°C and -40°C/+50°C/+80°C	
			N_{Rk} [kN]	$V_{Rk,b}$ [kN]
M8	80	12x80	2,0	3,0
M10	85	15x85	3,0	5,0
M10	135	15x135	4,5	5,5
M12	135	15x135	4,0	5,5
M12	150	16x150	5,5	5,0
M12	330	16x330	7,0	6,0
M12	85	20x85	4,0	5,0
M16	85	20x85	4,0	7,5

1) For design according to TR 054: $N_{Rk} = N_{Rk,p} = N_{Rk,b}$; $N_{Rk,s}$ according to Table C2 Annex C2; Calculation $N_{Rk,pb}$ see TR 054
2) For V_{Rk}, see Annex C2, Table C2; Calculation of $V_{Rk,pb}$ and $V_{Rk,c}$ see TR 054

Displacement

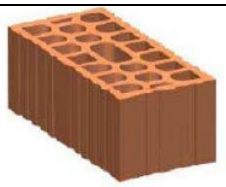
Diameter	Setting depth [mm]	Displacement under service load Tensile and shear load					
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
M8	80	0,6	0,08	0,16	0,97	0,25	0,5
M10	85	0,86	0,09	0,18	1,53	0,28	0,56
M10	135	1,3	0,19	0,38	1,59	0,28	0,42
M12	135	1,27	0,18	0,36	1,55	0,34	0,68
M12	150	1,21	0,16	0,32	1,47	0,33	0,66
M12	330	1,58	0,21	0,42	1,51	0,37	0,74
M12	85	2,04	0,25	0,5	1,71	0,41	0,82
M16	85	1,25	0,22	0,44	2,21	0,45	0,9

Group factor α_g

Configuration	Tensile		Shear parallel to free edge		Shear perpendicular to free edge	
	$\alpha_{g\,II,\,N}$	$\alpha_{g\perp,\,N}$	$\alpha_{g\,II,\,V\,II}$	$\alpha_{g\perp,\,V\,II}$	$\alpha_{g\,II,\,V\perp}$	$\alpha_{g\perp,,\,V\perp}$
$S \geq S_{min}$ and $C \geq C_{min}$	2,0	2,0	2,0	2,0	2,0	2,0
$S \geq S_{cr}$ and $C \geq C_{cr}$	2,0	2,0	2,0	2,0	2,0	2,0

Mattone Poroton P800

Brick type	Mattone Poroton P800
Compressive resistance [N/mm²]	≥ 15,0
Brick dimension [mm]	≥ 300 x 245 x 230
Drilling method	Rotary drilling



Installation parameter

Diameter	Setting depth [mm]	Sleeve dxL [mm]	Edge distance [mm]		Spacing [mm]	
			c_{min}	c_{cr}	$S_{min,II} = S_{cr,II}$	$S_{min,\perp} = S_{cr,\perp}$
M8	80	12x80	100	100	300	230
M10	85	15x85	100	100	300	230
M10	135	15x135	100	100	300	230
M12	135	15x135	100	100	300	230
M12	150	16x150	100	100	300	230
M12	330	16x330	100	100	300	230
M12	85	20x85	100	100	300	230
M16	85	20x85	100	100	300	230

Characteristic resistances for tensile and shear load

Diameter	Setting depth [mm]	Sleeve dxL [mm]	Category d/d, w/d and w/w Temperature range -40°C/+24°C/+40°C and -40°C/+50°C/+80°C	
			N_{Rk} [kN]	$V_{Rk,b}$ [kN]
M8	80	12x80	2,5	4,0
M10	85	15x85	3,0	5,0
M10	135	15x135	4,0	6,0
M12	135	15x135	4,5	7,0
M12	150	16x150	5,5	7,0
M12	330	16x330	7,5	6,5
M12	85	20x85	4,0	6,5
M16	85	20x85	4,5	8,0

1) For design according to TR 054: $N_{Rk} = N_{Rk,p} = N_{Rk,b}$; $N_{Rk,s}$ according to Table C2 Annex C2; Calculation $N_{Rk,pb}$ see TR 054
2) For V_{Rk}, see Annex C2, Table C2; Calculation of $V_{Rk,pb}$ and $V_{Rk,c}$ see TR 054

Displacement

Diameter	Setting depth [mm]	Displacement under service load Tensile and shear load					
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
M8	80	0,73	0,11	0,22	1,13	0,23	0,46
M10	85	0,87	0,12	0,24	1,55	0,24	0,48
M10	135	1,29	0,15	0,3	1,73	0,26	0,39
M12	135	1,35	0,15	0,3	1,98	0,32	0,64
M12	150	1,26	0,17	0,34	1,93	0,31	0,62
M12	330	1,68	0,21	0,42	1,99	0,35	0,7
M12	85	2,25	0,24	0,48	1,96	0,34	0,68
M16	85	1,43	0,22	0,44	2,32	0,42	0,84

Group factor α_g

Configuration	Tensile		Shear parallel to free edge		Shear perpendicular to free edge	
	$\alpha_{g\,II,\,N}$	$\alpha_{g\perp,\,N}$	$\alpha_{g\,II,\,V\,II}$	$\alpha_{g\perp,\,V\,II}$	$\alpha_{g\,II,\,V\perp}$	$\alpha_{g\perp,,\,V\perp}$
$S \geq S_{min}$ and $C \geq C_{min}$	2,0	2,0	2,0	2,0	2,0	2,0
$S \geq S_{cr}$ and $C \geq C_{cr}$	2,0	2,0	2,0	2,0	2,0	2,0

Mattone Climagold AAC2

Brick type	Climagold
Compressive resistance [N/mm²]	≥ 1,8
Brick dimension [mm]	≥ 625 x 200 x 360
Drilling method	Rotary drilling

Installation parameter

Diameter	Setting depth [mm]	Edge distance [mm]		Spacing [mm]	
		c_{min}	$c_{cr,N}$	s_{min}	$s_{min,\perp} = s_{cr,\perp}$
M8	80	50	120	50	240
M10	90	50	135	50	270
M12	100	50	150	50	300
M16	110	60	165	60	330

Characteristic resistances for tensile and shear load

Diameter	Setting depth [mm]	Category d/d, w/d and w/w Temperature range -40°C/+24°C/+40°C and -40°C/+50°C/+80°C			
		N_{Rk} [kN]		$V_{Rk,b}$ [kN]	
		$c=c_{min} - s=s_{min}$	$c=c_{cr} - s=s_{cr}$	$c=c_{min} - s=s_{min}$	$c=c_{cr} - s=s_{cr}$
M8	80	2,0	2,0	2,5	2,5
M10	90	2,5	2,0	3,0	3,0
M12	100	3,0	3,0	3,0	3,0
M16	110	3,5	3,5	3,5	3,0

1) For design according to TR 054: $N_{Rk} = N_{Rk,p} = N_{Rk,b}$; $N_{Rk,s}$ according to Table C2 Annex C2; Calculation $N_{Rk,pb}$ see TR 054
2) For V_{Rk}, see Annex C2, Table C2; Calculation of $V_{Rk,pb}$ and $V_{Rk,c}$ see TR 054

Displacement

Diameter	Setting depth [mm]	Displacement under service load Tensile and shear load					
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
M8	80	0,83	0,15	0,3	0,88	0,41	0,62
M10	90	0,95	0,18	0,36	1,1	0,45	0,68
M12	100	1,3	0,18	0,36	1,12	0,51	0,77
M16	110	1,43	0,24	0,48	1,21	0,51	0,77

Group factor α_g

Configuration	Tensile		Shear parallel to free edge		Shear perpendicular to free edge	
	$\alpha_{g\,II,\,N}$	$\alpha_{g\perp,\,N}$	$\alpha_{g\,II,\,V\,II}$	$\alpha_{g\perp,\,V\,II}$	$\alpha_{g\,II,\,V\perp}$	$\alpha_{g\perp,,\,V\perp}$
$S \geq S_{min}$ and $C \geq C_{min}$	2,0	2,0	2,0	2,0	2,0	2,0
$S \geq S_{cr}$ and $C \geq C_{cr}$	2,0	2,0	2,0	2,0	2,0	2,0

Mattone Blocco sismico – AAC5

Brick type	Blocco sismico
Compressive resistance [N/mm²]	≥ 5,0
Brick dimension [mm]	≥ 625 x 200 x 300
Drilling method	Rotary drilling

Installation parameter

Diameter	Setting depth [mm]	Edge distance [mm]		Spacing [mm]	
		c_{min}	$c_{cr,N}$	s_{min}	$s_{min,\perp} = s_{cr,\perp}$
M8	80	50	120	50	240
M10	90	50	135	50	270
M12	100	50	150	50	300
M16	110	60	165	60	330

Characteristic resistances for tensile and shear load

Diameter	Setting depth [mm]	Category d/d, w/d and w/w Temperature range -40°C/+24°C/+40°C and -40°C/+50°C/+80°C			
		N_{Rk} [kN]		$V_{Rk,b}$ [kN]	
		$c=c_{min} - s=s_{min}$	$c=c_{cr} - s=s_{cr}$	$c=c_{min} - s=s_{min}$	$c=c_{cr} - s=s_{cr}$
M8	80	2,0	3,5	2,5	4,0
M10	90	2,5	4,0	3,0	5,0
M12	100	3,0	4,5	3,0	5,5
M16	110	3,5	5,0	3,5	6,0

1) For design according to TR 054: $N_{Rk} = N_{Rk,p} = N_{Rk,b}$; $N_{Rk,s}$ according to Table C2 Annex C2; Calculation $N_{Rk,pb}$ see TR 054
2) For V_{Rk}, see Annex C2, Table C2; Calculation of $V_{Rk,pb}$ and $V_{Rk,c}$ see TR 054

Displacement

Diameter	Setting depth [mm]	Displacement under service load Tensile and shear load					
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
M8	80	1,47	0,1	0,2	1,44	0,43	0,65
M10	90	1,73	0,15	0,3	1,93	0,45	0,68
M12	100	1,84	0,16	0,32	1,97	0,54	0,81
M16	110	2,06	0,21	0,42	2,18	0,55	0,83

Group factor α_g

Configuration	Tensile		Shear parallel to free edge		Shear perpendicular to free edge	
	$\alpha_{g\,II,\,N}$	$\alpha_{g\perp,\,N}$	$\alpha_{g\,II,\,V\,II}$	$\alpha_{g\perp,\,V\,II}$	$\alpha_{g\,II,\,V\perp}$	$\alpha_{g\perp,,\,V\perp}$
$S \geq S_{min}$ and $C \geq C_{min}$	2,0	2,0	2,0	2,0	2,0	2,0
$S \geq S_{cr}$ and $C \geq C_{cr}$	2,0	2,0	2,0	2,0	2,0	2,0

HARMONIZED TECHNICAL SPECIFICATION: EAD330076-01-0604	
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: EAD330076-01-0604	
ESSENTIAL CHARACTERISTICS	**PERFORMANCE**
Resistance to fire	Class A1

LEGEND OF SYMBOLS	
d	Diameter of the bolt or threaded part
d_0	Hole diameter
d_{fix}	Diameter of the hole in the object to be fixed
h_{ef}	Effective anchoring depth
h_1	Hole depth
T_{inst}	Tightening torque
S_{min}	Minimum wheelbase
C_{min}	Minimum distance from the edges
N_{Rk}	Characteristic tensile resistance for single anchorage
$V_{Rk,b}$	Characteristic shear resistance for each anchor
$S_{cr,N}$	Spacing to ensure the transmission of the characteristic load for a single anchorage
$C_{cr,N}$	Edge distance to ensure the transmission of the characteristic load for a single anchorage
β	Factor according to EAD330076-01-0604
$\alpha_{N,seis}$	Factor for in situ tensile testing
$\alpha_{V,seis}$	Factor for in situ shear testing
α_g	Group factor
F	Service load
δ_0	Short-term displacement under service load
δ_∞	Long-term displacement under service load
α_{gap}	Reduction factor for annular gap

REACH Regulation No. 1907/2006

Dear customer,
We inform you that our company within the REACH supply chain is classified as a downstream user of substances and preparations.
With regard to the product defined in point 1, we would like to confirm that it does not currently contain substances considered SVHC based on the list published at the address:
http://echa.europa.eu/chem_data/candidate_list_table_en.asp.
The product safety data sheet can be requested from our technical office: tek@bossong.com or downloaded from our website www.bossong.com.

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10. The performance of the product referred to in points 1 and 2 is in conformity with the declared performance referred to in point 9. **This declaration of performance is issued under the sole responsibility of the manufacturer referred to in point 4.** **Signed for and on behalf of:**		
Name and function	**Place and date of issue**	**Signature**
Andrea Taddei **General Manager**	**Grassobbio (Bg) - Italia** **08.01.2026**