	<b>DECLARATION OF PERFORMANCE</b> According to Construction Product Regulation n° 305/2011
	DoP N°11/0377

<b>1. Unique identification code of the product-type:</b> NWS-CE/NWS-CEX4
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<b>2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):</b> NWS-CE – nominal diameter x total length (zinc plated version) NWS-CEX4 - nominal diameter x total length (stainless steel A4 version)
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<b>3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:</b>
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<b>Generic type and use</b>	Torque controlled expansion anchor							
<b>Size covered</b>	M6	M8	M10	M12	M14**	M16	M20	
<b>hef [mm]</b>	<b>std.</b>	40	48	55	65	75	84	103
	<b>red.</b>	-	35*	42	50	-	-	-
	std = standard – red. = reduced - * see type of loading ** Diameter M14 only for NWS-CE							
<b>Base material and strength class</b>	Reinforced or unreinforced normal weight concrete of strength class C20/25 at minimum to C50/60 at maximum according to EN 206-1.							
<b>Base material condition</b>	Non-cracked concrete.							
<b>Anchor metal material and corresponding environmental exposure</b>	a) Carbon galvanized steel for dry internal conditions. b) Stainless steel A4 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.							
<b>Type of loading</b>	Static or quasi-static loading. The size M8 with reduced anchorage depth must be used only to anchoring of components which are statically indeterminate.							

<b>4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):</b> Bossong S.p.A. - via Enrico Fermi 49-51- 24050 Grassobbio (Bg) – Italy – <a href="http://www.bossong.com">www.bossong.com</a>
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<b>5. Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2):</b> Not applicable
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<b>6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:</b> System 1
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<b>7. In case of the declaration of performance concerning a construction product covered by a harmonized standard:</b> Not applicable
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**8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:**

IEtcc issued ETA-11/0377 on the basis of ETAG 001 part 1 and 2.

IEtcc (n°1219) 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° 1219-CPR-0042.

**9. Declared performance:**

**HARMONIZED TECHNICAL SPECIFICATION: ETAG 001 PART 1 and PART 2**

ESSENTIAL CHARACTERISTICS		PERFORMANCE ACCORDING TO ETA-11/0377						
Installation parameters NWS-CE/NWS-CEX4		M6	M8	M10	M12	M14	M16	M20
d <sub>0</sub> [mm]		6	8	10	12	14	16	20
d <sub>fix</sub> [mm]		7	9	12	14	16	18	22
h <sub>min</sub> [mm]	h <sub>ef</sub> std.	100	100	110	130	150	168	206
	h <sub>ef</sub> red.	-	100	100	100	-	-	-
h <sub>1</sub> [mm]	h <sub>ef</sub> std.	55	65	75	85	100	110	135
	h <sub>ef</sub> red.	-	50	60	70	-	-	-
h <sub>nom</sub> [mm]	h <sub>ef</sub> std.	49,5	59,5	66,5	77,0	91,0	103,5	125,0
	h <sub>ef</sub> red.	-	46,5	53,5	62,0	-	-	-
T <sub>inst</sub> [Nm]		7	20	35	60	90	120	240
t <sub>fix</sub> [mm] (max. from ÷ to)	h <sub>ef</sub> std.	2÷122	5÷85	10÷150	18÷158	12÷142	3÷158	23÷123
	h <sub>ef</sub> red.	-	3÷98	3÷163	13÷173	-	-	-
S <sub>min</sub> e C <sub>min</sub> [mm]	h <sub>ef</sub> std.	50	65	70	85	100	110	135
	h <sub>ef</sub> red.	-	65	70	85	-	-	-
γ <sub>2</sub> [-] for NWS-CE	h <sub>ef</sub> std.	1,00	1,00	1,20	1,20	1,20	1,20	1,20
	h <sub>ef</sub> red.	-	1,00	1,00	1,00	-	-	-
γ <sub>2</sub> [-] for NWS-CEX4	h <sub>ef</sub> std.	1,00	1,00	1,20	1,20	1,20	1,20	1,20
	h <sub>ef</sub> red.	-	1,20	1,20	1,20	-	-	-
L [mm] for NWS-CE	L max	180	155	230	250	250	280	270
	L min	60	75	85	100	120	125	160
L [mm] for NWS-CEX4	L max	180	155	170	180	-	170	220
	L min	60	75	85	100	-	125	160
<b>Resistance for tensile load</b>								
<b>Resistance for steel failure NWS-CE</b>		<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14</b>	<b>M16</b>	<b>M20</b>
N <sub>Rk,s</sub> [kN]		7,7	16,4	25,6	35,4	51,7	65,0	104,4
γ <sub>Ms</sub> [-]		1,40	1,40	1,40	1,43	1,43	1,43	1,47
<b>Resistance for tensile load</b>								
<b>Resistance for steel failure NWS-CEX4</b>		<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14</b>	<b>M16</b>	<b>M20</b>
N <sub>Rk,s</sub> [kN]		10,1	19,1	34,3	49,6	-	85,9	140,7
γ <sub>Ms</sub> [-]		1,68	1,68	1,68	1,68	-	1,68	1,68
<b>Resistance for tensile load</b>								
<b>Resistance for pull-out failure NWS-CE/NWS-CEX4</b>		<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14**</b>	<b>M16</b>	<b>M20</b>
N <sub>Rk,p</sub> [kN] concrete C20/25	h <sub>ef</sub> std.	- *	12	16	25	30	35	50
	h <sub>ef</sub> red.	-	9	12	16	-	-	-
ψ <sub>c,ucr</sub> C30/37 [-]					1,22			
ψ <sub>c,ucr</sub> C40/50 [-]					1,41			
ψ <sub>c,ucr</sub> C50/60 [-]					1,55			

\* pull-out failure is not decisive - \*\* only NWS-CE

HARMONIZED TECHNICAL SPECIFICATION: ETAG 001 PART 1 and PART 2										
ESSENTIAL CHARACTERISTICS			PERFORMANCE ACCORDING TO ETA-11/0377							
<b>Resistance for tensile load NWS-CE/NWS-CEX4</b>			<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14**</b>	<b>M16</b>	<b>M20</b>	
<b>Resistance for concrete cone failure</b>										
h <sub>ef</sub> std. [mm]			40	48	55	65	75	84	103	
h <sub>ef</sub> red. [mm]			-	35	42	50	-	-	-	
S <sub>cr,N</sub> [mm]	h <sub>ef</sub> std.		120	144	165	195	225	252	309	
	h <sub>ef</sub> red.		-	105	126	150	-	-	-	
C <sub>cr,N</sub> [mm]	h <sub>ef</sub> std.		60	72	83	98	113	126	155	
	h <sub>ef</sub> red.		-	53	63	75	-	-	-	
<b>Resistance for tensile load NWS-CE/NWS-CEX4</b>			<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14**</b>	<b>M16</b>	<b>M20</b>	
<b>Resistance for splitting failure</b>										
S <sub>cr,sp</sub> [mm]	h <sub>ef</sub> std.		160	192	220	260	300	336	412	
	h <sub>ef</sub> red.		-	140	168	200	-	-	-	
C <sub>cr,sp</sub> [mm]	h <sub>ef</sub> std.		80	96	110	130	150	168	206	
	h <sub>ef</sub> red.		-	70	84	100	-	-	-	
<b>Resistance for shear load NWS-CE</b>			<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14</b>	<b>M16</b>	<b>M20</b>	
<b>Resistance for steel failure without lever-arm</b>										
V <sub>Rk,s</sub> [kN]			5,1	9,3	14,7	20,6	28,1	38,4	56,3	
γ <sub>Ms</sub> [-]			1,25							
<b>Resistance for shear load NWS-CEX4</b>			<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14</b>	<b>M16</b>	<b>M20</b>	
<b>Resistance for steel failure without lever-arm</b>										
V <sub>Rk,s</sub> [kN]			6,0	10,9	17,4	25,2	-	47,1	73,5	
γ <sub>Ms</sub> [-]			1,52							
<b>Resistance for shear load NWS-CE</b>			<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14</b>	<b>M16</b>	<b>M20</b>	
<b>Resistance for steel failure with lever-arm</b>										
M <sup>0</sup> <sub>Rk,s</sub> [Nm]			7,7	19,1	38,1	64,1	102,2	163,1	298,5	
γ <sub>Ms</sub> [-]			1,25							
<b>Resistance for shear load NWS-CEX4</b>			<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14</b>	<b>M16</b>	<b>M20</b>	
<b>Resistance for steel failure with lever-arm</b>										
M <sup>0</sup> <sub>Rk,s</sub> [Nm]			9,2	22,5	44,9	78,6	-	200,0	389,0	
γ <sub>Ms</sub> [-]			1,52							
<b>Resistance for shear load NWS-CE/NWS-CEX4</b>			<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14**</b>	<b>M16</b>	<b>M20</b>	
<b>Resistance for concrete pry-out failure</b>										
k [-]	h <sub>ef</sub> std.		1,0	1,0	1,0	2,0	2,0	2,0	2,0	
	h <sub>ef</sub> red.		-	1,0	1,0	1,0	-	-	-	
<b>Resistance for shear load NWS-CE/NWS-CEX4</b>			<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14**</b>	<b>M16</b>	<b>M20</b>	
<b>Resistance for concrete edge failure</b>										
d <sub>nom</sub> [mm]			6	8	10	12	14	16	20	
l <sub>f</sub> [mm]	h <sub>ef</sub> std.		40	48	55	65	75	84	103	
	h <sub>ef</sub> red.		-	35	42	50	-	-	-	
<b>Displacement under service load NWS-CE</b>			<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14</b>	<b>M16</b>	<b>M20</b>	
<b>Tensile load</b>										
F <sub>unc</sub> [kN]	h <sub>ef</sub> std.		2,8	5,0	6,0	9,3	10,7	16,0	17,0	
	h <sub>ef</sub> red.		-	4,2	5,7	7,6	-	-	-	
δ <sub>0,unc</sub> [mm]	h <sub>ef</sub> std.		0,70	1,12	1,07	1,32	1,82	2,38	3,56	
	h <sub>ef</sub> red.		-	0,20	0,13	0,06	-	-	-	
δ <sub>∞,unc</sub> [mm]	h <sub>ef</sub> std.		1,47	2,34	2,24	2,77	3,82	4,99	7,47	
	h <sub>ef</sub> red.		-	1,78	1,78	1,78	-	-	-	

\*\* only NWS-CE

HARMONIZED TECHNICAL SPECIFICATION: ETAG 001 PART 1 and PART 2								
ESSENTIAL CHARACTERISTICS		PERFORMANCE ACCORDING TO ETA-11/0377						
<b>Displacement under service load NWS-CEX4 Tensile load</b>		<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14</b>	<b>M16</b>	<b>M20</b>
F <sub>unc</sub> [kN]	hef std.	4,3	5,7	6,3	9,9	-	13,8	19,8
	hef red.	-	4,2	5,7	7,6	-	-	-
δ <sub>0,unc</sub> [mm]	hef std.	0,42	0,22	0,17	0,19	-	0,19	0,11
	hef red.	-	0,07	0,04	0,32	-	-	-
δ <sub>∞,unc</sub> [mm]	hef std.	1,33	1,33	1,33	1,33	1,33	1,33	1,33
	hef red.	-	0,60	0,60	0,60	-	-	-
<b>Displacement under service load NWS-CE Shear load</b>		<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14</b>	<b>M16</b>	<b>M20</b>
F <sub>unc</sub> [kN]	hef std.	2,9	5,3	8,4	11,8	16,0	21,9	32,1
	hef red.	-	5,3	8,4	11,8	-	-	-
δ <sub>0,unc</sub> [mm]	hef std.	0,65	2,80	1,75	2,45	2,78	3,53	4,13
	hef red.	-	0,59	1,22	1,10	-	-	-
δ <sub>∞,unc</sub> [mm]	hef std.	0,98	4,20	2,63	3,68	4,16	5,29	6,19
	hef red.	-	0,89	1,83	1,65	-	-	-
<b>Displacement under service load NWS-CEX4 Shear load</b>		<b>M6</b>	<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M14</b>	<b>M16</b>	<b>M20</b>
F <sub>unc</sub> [kN]	hef std.	2,8	5,1	8,1	11,8	-	22,1	34,5
	hef red.	-	5,1	8,1	11,8	-	-	-
δ <sub>0,unc</sub> [mm]	hef std.	1,66	1,79	3,83	4,13	-	5,75	6,59
	hef red.	-	0,60	3,83	4,13	-	-	-
δ <sub>∞,unc</sub> [mm]	hef std.	2,49	2,68	5,74	6,19	-	8,62	9,88
	hef red.	-	0,90	5,74	6,19	-	-	-

HARMONIZED TECHNICAL SPECIFICATION: ETAG 001 PART 1 PARAGRAPH 5.2.1	
ESSENTIAL CHARACTERISTICS	PERFORMANCE ACCORDING TO ETA-11/0377
Reaction to fire	Class A1

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 PART 1 ANNEX E	
ESSENTIAL CHARACTERISTICS	PERFORMANCE
Qualification for seismic load	NPD

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
$L$	Total length
$S_{min}$	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
$\gamma_2$	Partial safety factors for installation
$\gamma_{Ms}$	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
$k$	Factor for concrete edge failure
$l_f$	Effective anchorage depth
$F$	Service load in un-cracked (ucr) or cracked concrete (cr)
$\delta_0$	Short term displacement under service load in un-cracked (ucr) or cracked concrete (cr)
$\delta_{\infty}$	Long term displacement under service load in un-cracked (ucr) or cracked concrete (cr)
NPD	No performance declared

## Regolamento 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](http://echa.europa.eu/chem_data/candidate_list_table_en.asp)

**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
<b>Andrea Taddei General Manager</b>	<b>Grassobbio (Bg) - Italy 21.09.2015</b>	

Note: this DoP replace the previous version dated 18.06.2013.