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

1. Unique identification code of the product-type: NWS-CE / NWS-CEX2 / NWS-CEX4

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4): NWS-CE – nominal diameter x total length (zinc plated version) NWS-CEX2 - nominal diameter x total length (stainless steel A2 version) NWS-CEX4 - nominal diameter x total length (stainless steel A4 version)
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3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:
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Generic type and use	Torque controlled expansion anchor							
Size covered	M6	M8	M10	M12	M14**	M16	M20	
hef [mm]	std.	40	48	55	65	75	84	103
	red.	-	35*	42	50	-	65**	75**
	std = standard – red. = reduced - * see type of loading ** Diameter M14 and reduced setting for M16 and M20 only for NWS-CE							
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	Non-cracked concrete.							
Anchor metal material and corresponding environmental exposure	a) Carbon galvanized steel and stainless steel A2 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.							
Type of loading	Static or quasi-static loading. The size M8 with reduced anchorage depth must be used only to anchoring of components which are statically indeterminate.							

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

lETcc issued ETA-11/0377 on the basis of EAD 330232-00-0601.

lETcc (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: EAD 330232-00-0601

ESSENTIAL CHARACTERISTICS		PERFORMANCE ACCORDING TO ETA-11/0377						
Installation parameters NWS-CE/ NWS-CEX2 / NWS-CEX4		M6	M8	M10	M12	M14	M16	M20
d ₀ [mm]		6	8	10	12	14	16	20
d _{fix} [mm]		7	9	12	14	16	18	22
h _{min} [mm]	h _{ef} std.	100	100	110	130	150	168	206
	h _{ef} red.	-	100	100	100	-	130	150
h ₁ [mm]	h _{ef} std.	55	65	75	85	100	110	135
	h _{ef} red.	-	50	60	70	-	90	107
h _{nom} [mm]	h _{ef} std.	49,5	59,5	66,5	77,0	91,0	103,5	125,0
	h _{ef} red.	-	46,5	53,5	62,0	-	84,5	97
T _{inst} [Nm]		7	20	35	60	90	120	240
t _{fix} [mm]	h _{ef} std.	L-58	L-70	L-80	L-92	-	L-122	L-147
	h _{ef} red.	-	L-57	L-67	L-77	-	L-103	L-121
S _{min} e C _{min} [mm] for NWS-CE	h _{ef} std.	35	40	50	70	80	90	135
	h _{ef} red.	-	40	50	70	-	90	135
S _{min} e C _{min} [mm] for NWS-CEX2/ NWS-CEX4	h _{ef} std.	50	65	70	85	-	110	135
	h _{ef} red.	-	65	70	85	-	-	-
γ _{inst} [-] for NWS-CE	h _{ef} std.	1,00						
	h _{ef} red.	1,00						
γ _{inst} [-] for NWS-CEX4	h _{ef} std.	1,00	1,00	1,20	1,20	-	1,20	1,20
	h _{ef} red.	-	1,20	1,20	1,20	-	-	-
Resistance for tensile load Resistance for steel failure NWS-CE		M6	M8	M10	M12	M14	M16	M20
N _{Rk,s} [kN]		7,4	13,0	23,7	33,3	49,1	60,1	99,5
γ _{Ms} [-]		1,40	1,40	1,40	1,40	1,40	1,40	1,40
Resistance for tensile load Resistance for steel failure NWS-CEX2 / NWS-CEX4		M6	M8	M10	M12	M14	M16	M20
N _{Rk,s} [kN]		10,1	19,1	34,3	49,6	-	85,9	140,7
γ _{Ms} [-]		1,68	1,68	1,68	1,68	-	1,68	1,68
Resistance for tensile load Resistance for pull-out failure NWS-CE		M6	M8	M10	M12	M14**	M16	M20
N _{Rk,p} [kN] concrete C20/25	h _{ef} std.	- *	-*	19	- *	- *	- *	- *
	h _{ef} red.	-	10	- *	- *	-	- *	- *
Resistance for tensile load Resistance for pull-out failure NWS-CEX2 / NWS-CEX4		M6	M8	M10	M12	M14**	M16	M20
N _{Rk,p} [kN] concrete C20/25	h _{ef} std.	- *	12	16	25	-	35	50
	h _{ef} red.	-	9	12	16	-	-	-
ψ _{c,ucr} C30/37 [-]		1,22						
ψ _{c,ucr} C40/50 [-]		1,41						
ψ _{c,ucr} C50/60 [-]		1,58						

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

HARMONIZED TECHNICAL SPECIFICATION: EAD 330232-00-0601									
ESSENTIAL CHARACTERISTICS			PERFORMANCE ACCORDING TO ETA-11/0377						
Resistance for tensile load NWS-CE/ NWS-CEX2 / NWS-CEX4			M6	M8	M10	M12	M14**	M16	M20
Resistance for concrete cone failure									
h _{ef} std. [mm]			40	48	55	65	75	84	103
h _{ef} red. [mm]			-	35	42	50	-	65	75
S _{cr,N} [mm]	h _{ef} std.		120	144	165	195	225	252	309
	h _{ef} red.		-	105	126	150	-	195	225
C _{cr,N} [mm]	h _{ef} std.		60	72	83	98	113	126	155
	h _{ef} red.		-	53	63	75	-	97,5	112,5
k _{ucr,N}			11,0						
Resistance for tensile load NWS-CE/ NWS-CEX2 / NWS-CEX4			M6	M8	M10	M12	M14**	M16	M20
Resistance for splitting failure									
S _{cr,sp} [mm]	h _{ef} std.		160	192	220	260	300	280	360
	h _{ef} red.		-	140	168	200	-	260	300
C _{cr,sp} [mm]	h _{ef} std.		80	96	110	130	150	180	180
	h _{ef} red.		-	70	84	100	-	130	150
Resistance for shear load NWS-CE			M6	M8	M10	M12	M14	M16	M20
Resistance for steel failure without lever-arm									
V _{Rk,s} [kN]			5,1	9,3	14,7	20,6	28,1	38,4	56,3
γ _{Ms} [-]			1,25						
k _r			1,0						
Resistance for shear load taglio NWS-CEX2 / NWS-CEX4			M6	M8	M10	M12	M14	M16	M20
Resistance for steel failure without lever-arm									
V _{Rk,s} [kN]			6,0	10,9	17,4	25,2	-	47,1	73,5
γ _{Ms} [-]			1,52						
k _r			1,0						
Resistance for shear load NWS-CE			M6	M8	M10	M12	M14	M16	M20
Resistance for steel failure with lever-arm									
M ⁰ _{Rk,s} [Nm]			7,7	19,1	38,1	64,1	102,2	163,1	298,5
γ _{Ms} [-]			1,25						
Resistance for shear load taglio NWS-CEX2 / NWS-CEX4			M6	M8	M10	M12	M14	M16	M20
Resistance for steel failure with lever-arm									
M ⁰ _{Rk,s} [Nm]			9,2	22,5	44,9	78,6	-	200,0	389,0
γ _{Ms} [-]			1,52						
Resistance for shear load NWS-CE/ NWS-CEX2 / NWS-CEX4			M6	M8	M10	M12	M14**	M16	M20
Resistance for concrete pry-out failure									
k _δ [-]	h _{ef} std.		1,0	1,0	1,0	2,0	2,0	2,0	2,0
	h _{ef} red.		-	1,0	1,0	1,0	-	2,0-	2,0-
Resistance for shear load NWS-CE/ NWS-CEX2 / NWS-CEX4			M6	M8	M10	M12	M14**	M16	M20
Resistance for concrete edge failure									
d _{nom} [mm]			6	8	10	12	14	16	20
l _f [mm]	h _{ef} std.		40	48	55	65	75	84	103
	h _{ef} red.		-	35	42	50	-	65	75
Displacement under service load NWS-CE			M6	M8	M10	M12	M14	M16	M20
Tensile load									
F _{unc} [kN]	h _{ef} std.		3,8	6,6	9,0	12,6	15,6	18,5	25,1
	h _{ef} red.		-	4,8	6,5	8,5	-	12,6	15,6
δ _{0,unc} [mm]	h _{ef} std.		0,40	0,7	1,0	1,2	1,3	1,9	2,2
	h _{ef} red.		-	0,30	0,6	1,0	-	1,6	1,9
δ _{∞,unc} [mm]	h _{ef} std.		1,8	2,1	2,4	2,6	2,7	3,3	3,8
	h _{ef} red.		-	1,4	1,7	2,1	-	2,7	3,0

** only NWS-CE

HARMONIZED TECHNICAL SPECIFICATION: EAD 330232-00-0601								
ESSENTIAL CHARACTERISTICS		PERFORMANCE ACCORDING TO ETA-11/0377						
Displacement under service load NWS-CEX2 / NWS-CEX4 Tensile load		M6	M8	M10	M12	M14	M16	M20
F _{unc} [kN]	hef std.	4,3	5,7	6,3	9,9	-	13,8	19,8
	hef red.	-	4,2	5,7	7,6	-	-	-
δ _{0,unc} [mm]	hef std.	0,42	0,22	0,17	0,19	-	0,19	0,11
	hef red.	-	0,07	0,04	0,32	-	-	-
δ _{∞,unc} [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	-	-	-
Displacement under service load NWS-CE Shear load		M6	M8	M10	M12	M14	M16	M20
F _{unc} [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	-	21,9	32,1
δ _{0,unc} [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	-	3,10	3,40
δ _{∞,unc} [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	-	4,60	5,10
Displacement under service load NWS-CEX2 / NWS-CEX4 Shear load		M6	M8	M10	M12	M14	M16	M20
F _{unc} [kN]	hef std.	2,8	5,1	8,1	11,8	-	22,1	34,5
	hef red.	-	5,1	8,1	11,8	-	-	-
δ _{0,unc} [mm]	hef std.	1,66	1,79	3,83	4,13	-	5,75	6,59
	hef red.	-	0,60	3,83	4,13	-	-	-
δ _{∞,unc} [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: EAD 330232-00-0601	
ESSENTIAL CHARACTERISTICS	PERFORMANCE ACCORDING TO ETA-11/0377
Reaction to fire	Class A1

HARMONIZED TECHNICAL SPECIFICATION: EAD 330232-00-0601	
ESSENTIAL CHARACTERISTICS	PERFORMANCE
Resistance to fire	NPA

HARMONIZED TECHNICAL SPECIFICATION: TR049	
ESSENTIAL CHARACTERISTICS	PERFORMANCE
Qualification for seismic load	NPA

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 anchor 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
γ_{inst}	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
$k_{uncr,N}$	Factor for un-cracked concrete in concrete cone failure
k_7	Ductility factor
k_8	Pryout 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)
NPA	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

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 16.04.2019	

Note: this DoP replace the previous version dated 20.09.2015.