PRESTANDADEKLARATION

HECO-DoP_ETA_15/0784_MMS-plus_1606_SW

1. Produkttypens unika identifikationskod:
MULTI-MONTI-plus (MMS-plus)

2. Typ-, parti- eller serienummer eller någon annan beteckning som möjliggör identifiering av byggprodukter i enlighet med artikel 11.4:
Identifikation enligt ETA-15/0784 annex A2, A3
Partinummer: se produktens förpackning

3. Byggproduktens avsedda användning eller användningar i enlighet med den tillämpliga, harmoniserade tekniska specifikationen, såsom förutsett av tillverkaren:
ETA-15/0784 annex B1

Anchor type	Skruvankare
För användning i	Betong C20/25 till C50/60 (EN 206) - icke sprucken: Ø6, Ø7,5, Ø10 och Ø12 - sprucken: Ø6, Ø7,5, Ø10 och Ø12
Alternativ/kategori	Alternativ 1 Seismisk: Prestandakategori C1
Laster	statisk, kvasistatisk, seismisk (Ø10 + Ø12), brandbelastning
Material/utförande	Galvaniserat stål: - för användning under torra förhållanden inomhus - olika huvudformer

4. Tillverkarens namn, registrerade företagsnamn eller registrerade varumärke samt kontaktadress enligt vad som krävs i artikel 11.5:
HECO-Schrauben GmbH & Co. KG
Dr.-Kurt-Steim-Str. 28
78713 Schramberg (Tyskland)

5. I tillämpliga fall namn och kontaktadress för tillverkarens representant vars mandat omfattar de uppgifter som anges i artikel 12.2: **-**

6. Systemet eller systemen för bedömning och fortlöpande kontroll av byggproduktens prestanda enligt bilaga V:
System 1

7. För det fall att prestandadeklarationen avser en byggprodukt som omfattas av en harmoniserad standard: **-**

8. För det fall att prestandadeklarationen avser en byggprodukt för vilken en europeisk teknisk bedömning har utfärdats:

- Bedömningsorgan: Deutsches Institut für Bautechnik (DIBt)
- Anmält organ: Otto-Graf-Institut Stuttgart, identifikationsnummer 0672
- Bedömningsdokument: ETAG 001 del 1, 3 (04.2013)
- Intyg om överensstämmelse: 0672-CPR-0635

9. Angiven prestanda

Väsentliga kännetecken	**Beräkningsmetod**	**Effekt**	**Harmoniserade tekniska data**
Karakteristiska värden för dragbrottsgräns	ETAG 001, annex: C, Metod A CEN/TS 1992-4:2009, Metod A	ETA-15/0784: annex C1	ETAG 001 Part 1, 3 ETAG 001, annex E EOTA TR 020 (brandmotstånd)
	EOTA TR 045	ETA-15/0784: annex C2	
	EOTA TR 020 (brandmotstånd) CEN/TS 1992-4: annex D	ETA-15/0784: annex C3	
Karakteristiska värden för tvärbrottsgräns	ETAG 001, annex: C, Metod A CEN/TS 1992-4:2009, Metod A	ETA-15/0784: annex C1	
	EOTA TR 045	ETA-15/0784: annex C2	
	EOTA TR 020 (brandmotstånd) CEN/TS 1992-4: annex D	ETA-15/0784: annex C3	
Monteringsparametrar		ETA-15/0784: annex B2	
Förskjutningar av gränstillstånd för brukbarhet	ETAG 001, annex: C, Metod A CEN/TS 1992-4:2009, Metod A	ETA-15/0784: annex C4	

10. Prestandan för den produkt som anges i punkterna 1 och 2 överensstämmer med den prestanda som anges i punkt 9. Denna prestandadeklaration utfärdas på eget ansvar av den tillverkare som anges under punkt 4.

Undertecknat för tillverkaren av:

Schramberg, 01.07.2016 i.V.

Andreas Hettich, Produkt- och marknadschef

Specifications of intended use

Use of the anchoring:
- Static and quasi static loads: all sizes.
- Seismic category C1:
  MMS-plus all Versions, size 10 with maximum embedment depth (h_{nom2}) and size 12 with the embedment depth $h_{nom\ 1}$ and $h_{nom\ 2}$.
- Fire exposure: all sizes.

Base Materials:
- Reinforced or non-reinforced normal weight concrete according to EN 206-1:2000.
- Strength classes C20/25 to C50/60 according to EN 206-1:2000.
- Non-cracked and cracked concrete: all sizes.

Conditions of use (Environmental conditions):
- Structures subject to dry internal conditions.

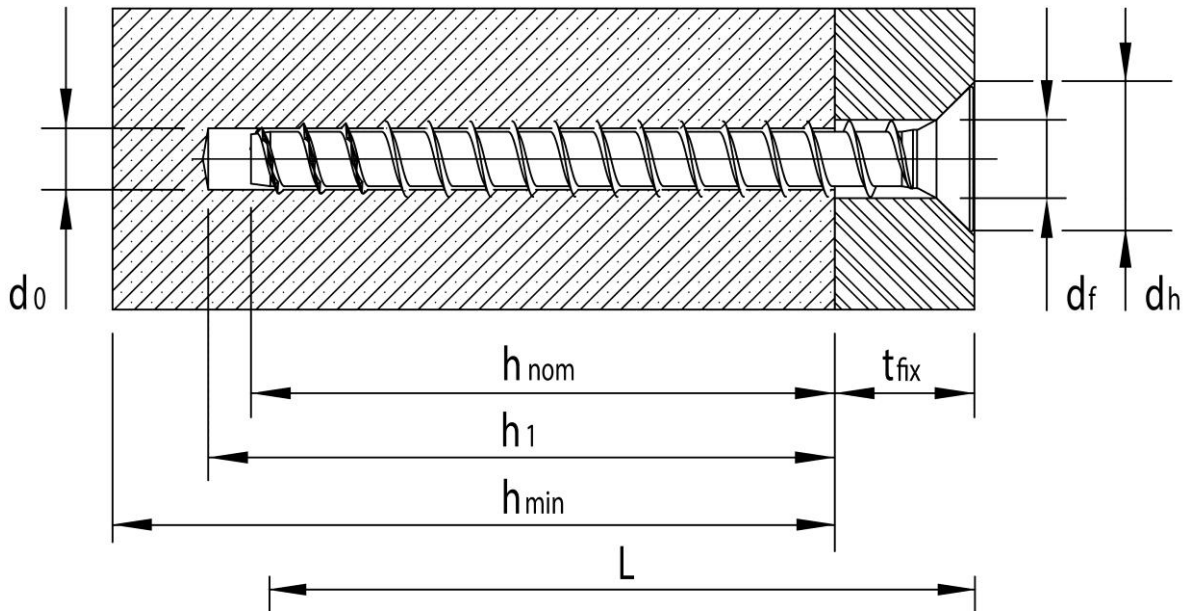
Design:
- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchor is indicated on the design drawings (e. g. position of the anchor relative to reinforcement or to supports, etc.).
- Anchorages under static or quasi-static actions are designed for design method A in accordance with:
  - ETAG 001, Annex C, edition august 2010 or
  - CEN/TS 1992-4:2009
- The design of the anchoring under seismic action have to be carried out in accordance with:
  - EOTA Technical Report TR 045, edition February 2013
  - Anchoring's have to be placed outside of critical places like plastic hinges.
  - A distance mounting or mounting with mortar layer is not allowed.
- The design of the anchoring under fire exposure have to be carried in accordance with:
  - EOTA Technical Report 020, edition Mai 2014 or
  - CEN/TS 1992-4:2009, Annex D
  - In case of requirements for resistance of fire exposure it must be ensured that local spalling of the concrete cover does not occur.

Installation:
- Hole drilling by hammer-drilling only.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- In case of aborted hole: new drilling at a minimum distance away of twice the depth of the aborted hole or smaller distance if the aborted hole is filled with high strength mortar and if under shear or oblique tension load it is not the direction of the load application.
- The anchor may be used only once.
- After installation further turning of the anchor must not be possible.
- The head of the anchor must be supported on the fixture and is not damaged.

Annex B1

Table B1: Installation parameters MMS-plus

Size MMS-plus				6		7,5		10		12	
				h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}
Embedment depth in concrete			[mm]	35	45	35	55	50	65	75	90
Nominal drill diameter		d_0	[mm]	5		6		8		10	
Drill bit cutting diameter		$d_{cut} \leq$	[mm]	5,40		6,40		8,45		10,45	
Depth of borehole		$h_1 \geq$	[mm]	40	50	40	65	60	75	85	100
Diameter of clearance hole in the fixture		$d_f \leq$	[mm]	7		9		12		14	
Diameter Countersunk		d_h	[mm]	11,5		15,5		19,5		24	
Min. thickness of the concrete member		h_{min}	[mm]	100	100	100	100	100	115	125	150
cracked and uncracked concrete	min. spacing	s_{min}	[mm]	30	30	40	40	40	50	60	60
	min. edge distance	c_{min}	[mm]	30	30	40	40	40	50	60	60
Recommended installation tool			[Nm]	Impact screw driver, max. power output T_{max} according manufacturer information							
				75	100	100		200		250	
Torque moment for threaded version (type MMS-plus V)		T_{inst}	[Nm]	-		15		20		30	



Annex B2

Table C1: Characteristic values for static and quasi-static tension MMS-plus

Size MMS-plus				**6**		**7,5**		**10**		**12**	
				h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}
Embedment depth in concrete		h_{nom}	[mm]	35 [1]	45	35 [1]	55	50	65	75	90
Steel failure for tension- and shear resistance											
Characteristic resistance		$N_{Rk,s}$	[kN]	10,8		17,6		32,1		49,9	
		$V_{Rk,s}$	[kN]	4,1		6,1		13,7		24,1	
		k_2 [2]	-	0,8							
		$M^0_{Rk,s}$	[Nm]	6,7		14,1		34,5		66,8	
Partial safety factor		γ_2	-	1,25							
Pullout											
Characteristic resistance in uncracked concrete C20/25		$N_{Rk,p}$	[kN]	4,0	6,0	4,0	9,0	12,0	16,0	20,0	25,0
Characteristic resistance in cracked concrete C20/25		$N_{Rk,p}$	[kN]	1,0	1,5	2,0	4,0	6,0	9,0	12,0	16,0
Increasing factor for concrete	C30/37	Ψ_c	-	1,22							
	C40/50			1,41							
	C50/60			1,55							
Concrete cone failure and splitting failure											
Effective anchorage depth		h_{ef}	[mm]	26	35	26	43	36	50	57	70
Factor for	cracked	k_{cr} [2]	-	7,2							
	uncracked	k_{unc} [2]	-	10,1							
Concrete cone	edge distance	$c_{cr,N}$	[mm]	1.5 h_{ef}							
	spacing	$s_{cr,N}$	[mm]	3 h_{ef}							
Splitting	edge distance	$c_{cr,sp}$	[mm]	1.8 h_{ef}							
	spacing	$s_{cr,sp}$	[mm]	3.6 h_{ef}							
Installation safety factor		γ_2 [3] = γ_{inst} [2]	-	1,0							
Concrete pryout failure											
k-factor		$k^{3)} = k_3$ [2]	-	1,0							2,0
Concrete edge failure											
Effective length of the anchor under shear loading		$l_{ef} = h_{ef}$	[mm]	26	35	26	43	36	50	57	70
Effective diameter of the anchor		d_{nom}	[mm]	5		6		8		10	

[1] Only for non-structural applications
[2] Parameter only relevant for the design according to CEN/TS 1992-4:2009
[3] Parameter only relevant for the design according to ETAG 001, Annex C

Annex C1

Table C2: Characteristic values for seismic actions C1

Size MMS-plus			**10**	**12**	
Embedment depth in concrete [mm]	h_{nom}		h_{nom2}	h_{nom1}	h_{nom2}
			65	75	90
Steel failure for tension- and shear resistance					
Characteristic resistance	$N_{Rk,s,seis}$	[kN]	24,1	37,4	
	$V_{Rk,s,seis}$	[kN]	9,6	16,9	
Pullout					
Characteristic in cracked concrete	$N_{Rk,p,seis}$	[kN]	6,8	9,0	12,0
Concrete cone failure					
Effective anchorage depth	h_{ef}	[mm]	50	57	70
concrete cone — edge distance	$c_{cr,N}$	[mm]	1,5 h_{ef}		
concrete cone — spacing	$s_{cr,N}$	[mm]	3 h_{ef}		
Installation safety factor	γ_2	-	1,0		
Concrete pryout failure					
k-factor	k	-	2,0	1,0	
Concrete edge failure					
Effective length of the anchor under shear loading	$l_{ef} = h_{ef}$	[mm]	50	57	70
Effective diameter of the anchor	d_{nom}	[mm]	8	10	

Annex C2

Table C3: Characteristic values under fire exposure

Size MMS-plus				**6**		**7,5**		**10**		**12**	
				h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}
Embedment depth in concrete		h_{nom}	[mm]	35	45	35	55	50	65	75	90
Steel failure for tension- and shear resistance ($F_{Rk,fi} = N_{Rk,fi} = V_{Rk,fi}$)											
Characteristic resistance	R30	$F_{Rk,fi}$	[kN]	0,25	0,4	0,5	1,0	1,5	2,3	3,0	3,0
	R60	$F_{Rk,fi}$	[kN]	0,25	0,4	0,5	0,8	1,4	1,4	2,1	2,1
	R90	$F_{Rk,fi}$	[kN]	0,25	0,4	0,5	0,5	1,0	1,0	1,5	1,5
	R120	$F_{Rk,fi}$	[kN]	0,2	0,3	0,4	0,4	0,8	0,8	1,2	1,2
	R30	$M^0_{Rk,s,fi}$	[Nm]	0,5		1,1		2,7		5,3	
	R60	$M^0_{Rk,s,fi}$	[Nm]	0,3		0,6		1,5		2,8	
	R90	$M^0_{Rk,s,fi}$	[Nm]	0,2		0,4		1,1		2,0	
	R120	$M^0_{Rk,s,fi}$	[Nm]	0,2		0,3		0,9		1,6	
Edge distance											
	R30 to R120	$c_{cr,fi}$	[mm]	2 h_{ef}							
Spacing											
	R30 to R120	$s_{cr,fi}$	[mm]	2 $c_{cr,fi}$							

Annex C3

Table C4: Displacements under tension loads

Size MMS-plus				6		7,5		10		12	
				h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}
Embedment depth in concrete		h_{nom}	[mm]	35	45	35	55	50	65	75	90
Cracked concrete C20/25 to C50/60	tension	N	[kN]	1,9	3,0	1,9	5,3	5,7	7,9	10,7	12,8
	displacement	δ_{N0}	[mm]	0,11	0,11	0,06	0,12	0,06	0,07	0,05	0,19
		$\delta_{N\infty}$	[mm]	0,30	0,28	0,38	1,03	0,75	0,72	0,74	0,60
Uncracked concrete C20/25 to C50/60	tension	N	[kN]	0,5	0,7	0,9	2,0	2,9	4,3	5,7	6,4
	displacement	δ_{N0}	[mm]	0,01	0,02	0,03	0,04	0,03	0,09	0,05	0,02
		$\delta_{N\infty}$	[mm]	0,14	0,09	0,12	0,11	0,08	0,09	0,07	0,22

Table C5: Displacements under shear loads

Size MMS-plus				6		7,5		10		12	
				h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}
Embedment depth in concrete		h_{nom}	[mm]	35	45	35	55	50	65	75	90
Cracked and uncracked concrete C20/25 to C50/60	shear load	V	[kN]	2	2	4	4	8	8	12	12
	displacement	δ_{N0}	[mm]	0,14	0,13	0,09	0,11	0,18	0,13	0,18	0,18
		$\delta_{N\infty}$	[mm]	0,20	0,19	0,13	0,16	0,27	0,20	0,27	0,27

Annex C4