HECO SCHRAUBEN

MULTI-MONTI®

Technical manual

Version 06/2015



Technical manual MULTI-MONTI®

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Instructions for fixing

The fixing-system MULTI-MONTI® is based on a completely new concept in structural fasteners. By threading the fixing into the substrate material, the thread undercuts and thus enables a positive and safe threaded anchorage like that of an undercut anchor. The threaded anchorage is not subject to any expansion pressure and fixed without preload in the base material.

The quality of the drilled hole is the critical factor for an easy setting of the wall-anchor MULTI-MONTI®. Please ensure that the holes are drilled perpendicular to the fixing plane and that they are sufficiently deep. The drill dust has to be taken out.

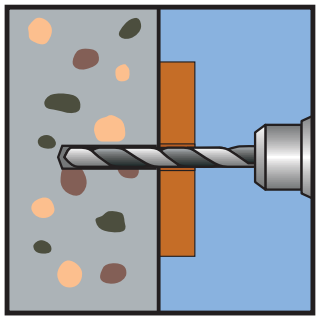
In concrete you should use hammer drills according to DIN 8035 and percussion drills in brickwork.

The minimum depths for setting the MULTI-MONTI® are to be found in the following tables. For adjusting and leveling, deeper settings are possible.
All necessary technical data is to be found in the following tables.

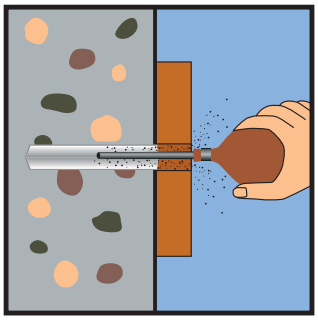
Because of the undercutting of the threads, the anchorage is guaranteed without retaining force. It is therefore not necessary, unlike other anchoring and plug systems, to apply high torques for a reliable fixing. The preload to be applied serves only the fastening of the component to be fixed. In order to avoid an overload of the anchorage, the manufacturer recommends adherence to the recommended tightening torques, given in $T_{inst.}$

For fixings with hexagon head screws, type MMS-S and with pan head screws, type MMS-P you can use commercially available plain washers according to DIN 9021 or DIN 440.

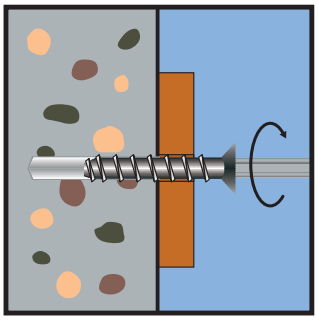
The min. anchor length has to be calculated by addition of the clamping strength and the embedment. In case, there is no MULTI-MONTI®-screw-in-anchor available in the requested length, the next longer anchor has to be taken.
In this case, drilling-depth and embedment will increase.



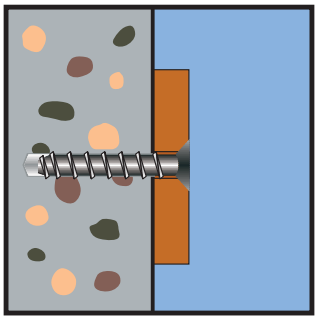
Drilling



Cleaning



Screwing



Finished

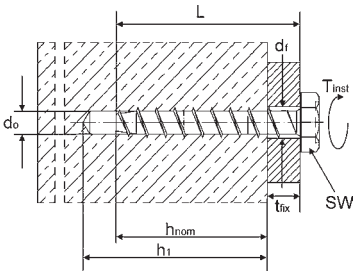
Chapter 1 Admissible loads in concrete

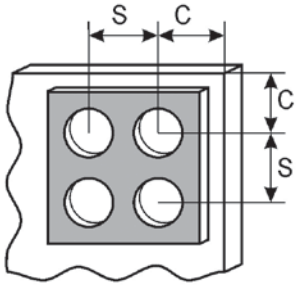
Option 1 für gerissenen und ungerissenen Beton

1.1 Maxium admissible loads for anchorages with single anchors in cracked and non-cracked concrete according to ETA 05/0010 and ETA 05/0011
(The complete approval needs to be taken into account when calculating loads)

Anchor-size				**MMS-7,5**		**MMS-10**		**MMS-12**		**MMS-14**	**MMS-16**
				A4	galv.	A4	galv.	A4	galv.	galv.	galv.
Approval-no. ETA 05/				0011	0010	0011	0010	0011	0010	0010	0010
Max. admissible tension load*) "N_{zul}" of a single anchor without edge influence [1)]											
Cracked concrete C20/25 [3)]			[kN]	1,8	2,0	3,7		4,9		8,2	12,1
Non-cracked concrete C20/25 [3)]			[kN]	2,6	3,1	4,9		6,5		12,3	16,4
Max. admissible shear load*) "V_{zul}" of a single anchor without edge influence [2)]											
Cracked concrete C20/25 [3)]			[kN]	4,5	3,4 [5)]	9,8 [5)]	7,9 [5)]	14,3	11,3 [5)]	17,7 [5)]	24,2 [5)]
Non-cracked concrete C20/25 [3)]			[kN]	6,0 [5)]	3,4 [5)]	9,8 [5)]	7,9 [5)]	16,2 [5)]	11,3 [5)]	17,7 [5)]	24,2 [5)]
Admissible bending load*) "M_{zul}"											
			[Nm]	10,9	9,4	22,2	18,7	45,9	35	65,1	107,1
Dimensions of concrete member and installation data											
Nominal drill diameter	d_0	=	[mm]	6,0		8,0		10,0		12,0	14,0
Drilling depth	h_1	≥	[mm]	75	65	90	75	100	85	105	130
Embedment overall	h_{nom}	≥	[mm]	65	55	75	65	90	75	95	115
Calculating embedment	h_{ef}	=	[mm]	40		47,5		54,5		71,5	87,5
Min. spacing	s_{min}	=	[mm]	40		50		60		90	100
Min. edge distance	c_{min}	=	[mm]	40		50		60		90	100
Min. thickness of concrete member	h_{min}	=	[mm]	105	100	130	115	140	125	150	180
Clearance hole diamter through fixture	d_f	≤	[mm]	9		12		14		16	18
Recommended installation torque [4)]	T_{inst}	=	[Nm]	20		40		55		90	110

1) that means c ≥ 1,5 * h_{ef} and s ≥ 3 * h_{ef}
2) that means c ≥ 10 * h_{ef}
3) concrete with normal reinforcement. In case of higher concrete strength higher loads may be possible
4) the installation torque is not fixed in the approvals and therefore not relevant for the observance of the admission
5) steel failur decisive
*) based on the partial safety factors of anchor resistance acc. approvals and a partial safety factor of the action γ_G = 1,35. In case of combined loading, anchor-groups as well as edge and spacing influences please see the instructions for the calculation method A in attachment C of the ETAG or following chapters of the calculation help.





1.2 Admissible loads for fixations in non-cracked concrete and for fixations of lightweight systems with MULTI-MONTI®-screw-in-anchors

(The complete approval needs to be taken into account when calculating loads)

Anchor-size				**MMS-6**	**MMS-7,5**	**MMS-7,5**	**MMS-10**
				galv.	galv.	galv.	galv.
Approval-no. Z-21.1-				1503	1503	1503	1503
Admissible loads of single anchors for tension, shear and combined loads in uncracked concrete C20/25							
Admissible load F_{zul} in concrete ≥ C20/25			[kN]	1,5	2,0	3,0	-
Admissible bending load of single anchors							
Admissible bending load M_{zul}			[Nm]	5,1	10,0	10,0	-
Dimensions of concrete member and installation data							
Spacing	**s**	≥	[mm]	160	160	200	-
Edge distance	**c**	≥	[mm]	80	80	80	-
Width of concrete member	**b**	≥	[mm]	160	160	160	-
Reduction factor of the adm. load in case of reinforcement with spacing smaller than 15 cm in the fixation area			[-]	0,7	0,7	0,7	-
Admissible loads of single anchors for the fixation of lightweight systems							
Admissible load F_{zul} for fixations of lightweight systems acc. DIN 18168 in concrete ≥ C20/25			[kN]	0,3	0,5	0,8	0,8
Admissible loads for single anchors in case of fire prevention requestions							
Admissible load F120 in case of fire influences			[kN]	0,3	0,5	0,5	0,8
Dimensions of concrete member and installation data							
Nominal drill diameter	$\mathbf{d_0}$	=	[mm]	5,0	6,0	6,0	8,0
Drilling depth	$\mathbf{h_1}$	≥	[mm]	55	55	65	65
Embedment overall	$\mathbf{h_{nom}}$	≥	[mm]	45	45	55	55
Spacing	**s**	=	[mm]	200			
Edge distance	**c**	=	[mm]	100			
Min. thickness of concrete member	$\mathbf{h_{min}}$	=	[mm]	h_1 + 50 mm			
Clearance hole diamter through fixture	$\mathbf{d_f}$	≤	[mm]	6,5	8	8	10,5
Recommended installation torque [4)]	$\mathbf{T_{inst}}$	=	[Nm]	12	20	20	50

4) the installation torque is not fixed in the approvals

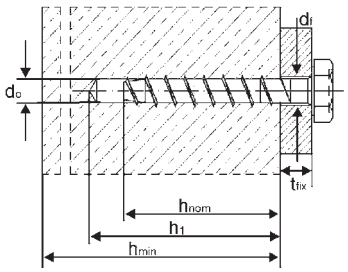
Chapter 2

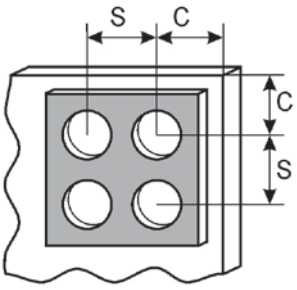
Recommended loads for fixations in concrete and masonry for MMS-5 to MMS-20

2.1 Recommended loads for fixations in cracked and non-cracked concrete with MULTI-MONTI®-screw-in-anchors MMS-5 to MMS-20

Anchor-size				**MMS-5**	**MMS-6**	**MMS-7,5**		**MMS-10**		**MMS-12**		**MMS-14**	**MMS-16**	**MMS-20**
				galv.	galv.	A4	galv.	A4	galv.	A4	galv.	galv.	galv.	galv.
Max. recommended tension load "N" of a single anchor without edge influence [1]														
Non-cracked concrete C20/25 [3]			[kN]	**2,6**	**3,8**	**5,3**		**6,8**		**8,3**		**12,5**	**17,0**	**18,3**
Cracked concrete C20/25 [3]			[kN]	**1,8**	**2,7**	**3,8**		**4,9**		**6,0**		**9,0**	**12,1**	**13,1**
Max. recommended shear load "V" of a single anchor without edge influence [2]														
Non-cracked concrete C20/25 [3]			[kN]	**2,0**	**3,1**	**6,0**	**3,4**	**9,9**	**7,9**	**14,3**	**11,3**	**17,8**	**24,2**	**40,0**
Cracked concrete C20/25 [3]			[kN]	**2,0**	**3,1**	**4,5**	**3,4**	**9,9**	**7,9**	**16,2**	**11,3**	**17,8**	**24,2**	**31,4**
Recommended bending load "M" of a single anchor														
			[Nm]	**-**	**5,1**	**10,9**	**9,4**	**22,2**	**18,7**	**45,9**	**35,0**	**65,0**	**107,0**	**-**
Dimensions of concrete member and installation data														
Nominal drill diamater	d_0	=	[mm]	4	5	6		8		10		12	14	18
Drilling depth	h_1	≥	[mm]	$h_{nom} + d_0$										
Embedment overall	h_{nom}	≥	[mm]	35	45	65	55	75	65	90	75	95	115	115
Calculating embedment	h_{ef}	=	[mm]	25	32	40		48		55		72	88	92
Min. edge distance	c_{min}	=	[mm]	35	40	40		50		60		80	80	80
Min. spacing	s_{min}	=	[mm]	35	40	40		50		60		80	80	80
Min. thickness of concrete member	h_{min}	=	[mm]	80	90	100		120		130		150	180	220
Clearance hole diamter through fixture	d_f	≤	[mm]	6,0	7,0	8,5		12,0		14,0		16,0	18,0	22,0
Recommended installation torque	T_{inst}	=	[Nm]	8	12	20		50		80		100	150	180

1) that means c ≥ 1,5 * h_{ef} and s ≥ 3 * h_{ef}
2) that means c ≥ 10 * h_{ef}
3) concrete with normal reinforcement





2.2 Recommended loads for fixations in brickwork with MULTI-MONTI®-screw-in-anchors MMS-5 to MMS-12

Anchor-size			Strength	MMS-5	MMS-6	MMS-7,5	MMS-10	MMS-12	MMS-14	MMS-16	MMS-20
				galv.	galv.	galv.	galv.	galv.	galv.	galv.	galv.
Max. recommended tension load of a single anchor without edge influence [1] in sand-lime-brick											
Recommended tension load "N" in sand-lime-brick	**[kN]**		KS 12	**0,5**	**1,1**	**1,4**	**2,1**	**2,5**	**-**	**-**	**-**
Max. recommended tension load of a single anchor without edge influence [1] in full-brick											
Recommended tension load "N" in full-brick	**[kN]**		MZ 12	**0,3**	**0,5**	**0,8**	**1,0**	**1,2**	**-**	**-**	**-**
Max. recommended tension load of a single anchor without edge influence [1] in clinker											
Recommended tension load "N" in clinker	**[kN]**		KS 12	**0,5**	**1,1**	**1,4**	**2,1**	**2,5**	**-**	**-**	**-**
Dimensions of the brickwork member and installation data											
Nominal drill diamater [2]	d_0	=	[mm]	4	5	6	8	10	-	-	-
Drilling depth	h_1	≥	[mm]	$h_{nom} + d_0$							
Embedment overall	h_{nom}	≥	[mm]	35	45	55	65	75	-	-	-
Calculating embedment	h_{ef}	=	[mm]	25	32	40	48	55	-	-	-
Min. edge distance	c_{min}	=	[mm]	35	40	50	50	60	-	-	-
Min. spacing	s_{min}	=	[mm]	35	40	50	50	60	-	-	-
Min. thickness of brickwork	h_{min}	=	[mm]	80	90	100	120	130	-	-	-
Clearance hole diamter through fixture	d_f	≤	[mm]	6,0	7,0	8,5	12,0	14,0	-	-	-
Recommended installation torque	T_{inst}	=	[Nm]	3	6	15	30	30	-	-	-

1) edge distance to the wall c ≥ 1,5 * h_{ef}
2) percussion drill

2.3 Recommended loads for fire prevention F-30 to F-120 in concrete and brickwork for MULTI-MONTI®-screw-in-anchors MMS-5 to MMS-12

Anchor-size			MMS-5	MMS-6	MMS-7,5	MMS-10	MMS-12	MMS-14	MMS-16	MMS-20
Recommended load for tensile, shear and oblique loads fore fire prevention fixations in concrete										
Load in case of fire prevention requestions in concrete ≥ C20/25	**[kN]**	F 30	**0,5**	**0,9**	**1,5**	**2,7**	**4,4**	**-**	**-**	**-**
		F 60	**0,3**	**0,6**	**1,1**	**2,0**	**3,2**	**-**	**-**	**-**
		F 90	**0,25**	**0,4**	**0,8**	**1,5**	**2,4**	**-**	**-**	**-**
		F 120	**0,1**	**0,3**	**0,5**	**1,0**	**1,5**	**-**	**-**	**-**
Recommended load for tensile, shear and oblique loads fore fire prevention fixations in brickwork										
Load in case of fire prevention requestions in brickwork [1]	**[kN]**	F 30	**0,5**	**0,8**	**1,25**	**2,5**	**3,7**	**-**	**-**	**-**
		F 60	**0,3**	**0,5**	**0,8**	**1,4**	**2,2**	**-**	**-**	**-**
		F 90	**0,15**	**0,35**	**0,5**	**1,0**	**1,5**	**-**	**-**	**-**
		F 120	**0,1**	**0,3**	**0,3**	**0,8**	**1,3**	**-**	**-**	**-**

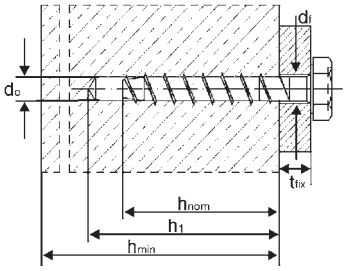
1) consider the load-recommendations of chapter 2.2

Chapter 3 Products

3.1 MMS-S

Type: MULTI-MONTI®-S screw-in-anchor hexagon head
Material: steel
Surface: bright zinc plated





erfüllt die Anforderungen nach VdS CEA 4001

Option 1 für gerissenen und ungerissenen Beton

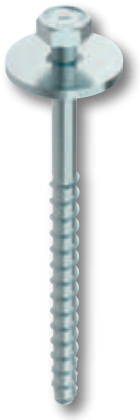
Feuerwiderstandsklasse F120

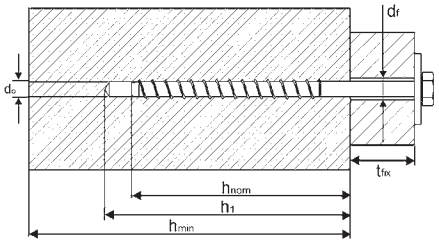
Type	Size D x L	Recess	Head diameter	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-S 1)	6 x 40*	SW-10	-	5	45	35	5	-	-	2,4
MMS-S	6 x 50	SW-10	-	5	55	45	5	0,3 2)	1,5 2)	3,8
MMS-S	6 x 60	SW-10	-	5	55	45	15	0,3 2)	1,5 2)	3,8
MMS-S	6 x 80	SW-10	-	5	55	45	35	0,3 2)	1,5 2)	3,8
MMS-S	6 x 100	SW-10	-	5	55	45	55	0,3 2)	1,5 2)	3,8
MMS-S 1)	7,5 x 35*	SW-13	-	6	40	35	1	-	-	2,2
MMS-S 1)	7,5 x 40*	SW-13	-	6	45	35	5	-	-	2,2
MMS-S	7,5 x 45	SW-13	-	6	55	45	1	0,5 2)	2,0 2)	3,7
MMS-S	7,5 x 50	SW-13	-	6	55	45	5	0,5 2)	2,0 2)	3,7
MMS-S	7,5 x 60	SW-13	-	6	65	55	5	2,0 7)	3,1 7)	5,3
MMS-S	7,5 x 80	SW-13	-	6	65	55	25	2,0 7)	3,1 7)	5,3
MMS-S	7,5 x 100	SW-13	-	6	65	55	45	2,0 7)	3,1 7)	5,3
MMS-S	7,5 x 120	SW-13	-	6	65	55	65	2,0 7)	3,1 7)	5,3
MMS-S	7,5 x 140	SW-13	-	6	65	55	85	2,0 7)	3,1 7)	5,3
MMS-S	10 x 60	SW-16	-	8	65	55	5	0,8 2)	-	5,0
MMS-S	10 x 70	SW-16	-	8	75	65	5	3,7 7)	4,9 7)	6,8
MMS-S	10 x 80	SW-16	-	8	75	65	15	3,7 7)	4,9 7)	6,8
MMS-S	10 x 100	SW-16	-	8	75	65	35	3,7 7)	4,9 7)	6,8
MMS-S	10 x 120	SW-16	-	8	75	65	55	3,7 7)	4,9 7)	6,8
MMS-S	10 x 140	SW-16	-	8	75	65	75	3,7 7)	4,9 7)	6,8
MMS-S	10 x 160	SW-16	-	8	75	65	95	3,7 7)	4,9 7)	6,8
MMS-S 1)	12 x 60*	SW-18	-	10	65	55	5	-	-	4,7
MMS-S	12 x 80	SW-18	-	10	85	75	5	4,9 7)	6,5 7)	8,3
MMS-S	12 x 90	SW-18	-	10	85	75	15	4,9 7)	6,5 7)	8,3
MMS-S	12 x 100	SW-18	-	10	85	75	25	4,9 7)	6,5 7)	8,3
MMS-S	12 x 120	SW-18	-	10	85	75	45	4,9 7)	6,5 7)	8,3
MMS-S	12 x 140	SW-18	-	10	85	75	65	4,9 7)	6,5 7)	8,3
MMS-S	12 x 160	SW-18	-	10	85	75	85	4,9 7)	6,5 7)	8,3
MMS-S *)	14 x 80	SW-21	-	12	80	70	10	-	-	7,3
MMS-S	14 x 110	SW-21	-	12	105	95	15	8,2 7)	12,3 7)	12,5
MMS-S	14 x 130	SW-21	-	12	105	95	35	8,2 7)	12,3 7)	12,5
MMS-S	14 x 150	SW-21	-	12	105	95	55	8,2 7)	12,3 7)	12,5
MMS-S 1)	16 x 80*	SW-24	-	14	80	70	10	-	-	7,3
MMS-S 1)	16 x 120*	SW-24	-	14	130	110	10	-	-	15,9
MMS-S	16 x 130	SW-24	-	14	130	115	15	12,1 7)	16,4 7)	17,0
MMS-S	16 x 150	SW-24	-	14	130	115	35	12,1 7)	16,4 7)	17,0
MMS-S 1)	20 x 100*	SW-30	-	18	110	90	10	-	-	10,5
MMS-S 1)	20 x 130*	SW-30	-	18	140	115	15	-	-	18,3

1) = not part of the approvals
2) = according to the German DIBt-approval no. Z-21.1-1503
7) = according to ETA 05/0010
*) = on request
* = not qualified for fastenings in case of fire

3.2 MMS-S

Type: MULTI-MONTI®-S screw-in-anchor hexagon head with washer DIN 440 (diameter 43 mm)
Material: steel
Surface: bright zinc plated





erfüllt die Anforderungen nach VdS CEA 4001

Option 1 für gerissenen und ungerissenen Beton

Feuerwiderstandsklasse F120

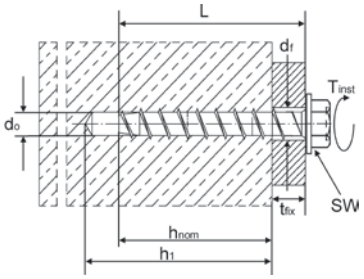
Type	Size D x L	Recess	Head diameter	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-S	12 x 180	SW-18	-	10	85	75	105	4,9 7)	6,5 7)	8,3
MMS-S	12 x 200	SW-18	-	10	85	75	125	4,9 7)	6,5 7)	8,3
MMS-S	12 x 240	SW-18	-	10	85	75	165	4,9 7)	6,5 7)	8,3
MMS-S	12 x 280	SW-18	-	10	85	75	205	4,9 7)	6,5 7)	8,3
MMS-S	12 x 320	SW-18	-	10	85	75	245	4,9 7)	6,5 7)	8,3

7) = according to ETA 05/0010

3.3 MMS-SS

Type: MULTI-MONTI®-SS screw-in-anchor hexagon head with combined washer
Material: steel
Surface: bright zinc plated





erfüllt die Anforderungen nach VdS CEA 4001

Option 1 für gerissenen und ungerissenen Beton

Feuerwiderstandsklasse F120

Type	Size D x L	Recess	Washerdiameter	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-SS	6 x 50	SW-8	11,5	5	55	45	5	0,3 2)	1,5 2)	3,8
MMS-SS	6 x 60	SW-8	11,5	5	55	45	15	0,3 2)	1,5 2)	3,8
MMS-SS	7,5 x 50	SW-10	14,5	6	55	45	5	0,5 2)	2,0 2)	3,7
MMS-SS	7,5 x 60	SW-10	14,5	6	65	55	5	2,0 7)	3,1 7)	5,3
MMS-SS	10 x 70	SW-13	19,0	8	75	65	5	3,7 7)	4,9 7)	6,8
MMS-SS	10 x 80	SW-13	19,0	8	75	65	15	3,7 7)	4,9 7)	6,8
MMS-SS	12 x 90	SW-15	22,5	10	85	75	15	4,9 7)	6,5 7)	8,3
MMS-SS	12 x 100	SW-15	22,5	10	85	75	25	4,9 7)	6,5 7)	8,3

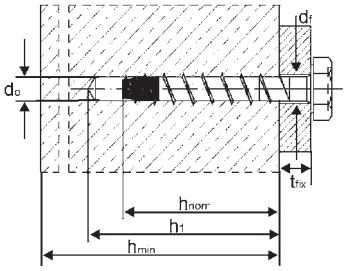
2) = according to the German DIBt-approval no. Z-21.1-1503

7) = according to ETA 05/0010

3.4 MMS-S stainless steel A4

Type: MULTI-MONTI®-S screw-in-anchor hexagon head
Material: stainless steel A4 1.4401
other steel-sorts on request
Surface: stainless steel self-colour
function tip phosphated








erfüllt die Anforderungen nach VdS CEA 4001



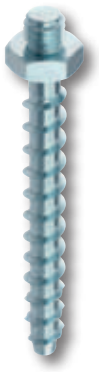

Feuerwiderstandsklasse F120

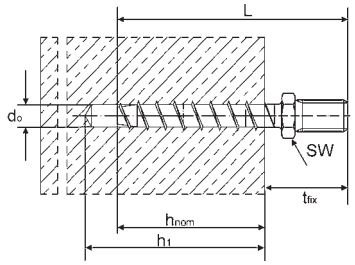
Type	Size D x L	Recess	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-S	7,5 x 50/10*	SW-13	6	65	55	10	0,5	2,0	3,7
MMS-S	7,5 x 75/10	SW-13	6	75	65	10	1,8 7)	2,6 7)	5,3
MMS-S	10 x 85/10	SW-16	8	90	75	10	3,7 7)	4,9 7)	6,8
MMS-S	10 x 95/20	SW-16	8	90	75	20	3,7 7)	4,9 7)	6,8
MMS-S	12 x 100/10	SW-18	10	100	90	10	4,9 7)	6,5 7)	8,3
MMS-S	12 x 120/30	SW-18	10	100	90	30	4,9 7)	6,5 7)	8,3

7) = according to ETA 05/0011 * = not qualified for fastenings in case of fire

3.5 MMS-ST

Type: MULTI-MONTI®-ST screw-in-anchor with metric stud
Material: steel
Surface: bright zinc plated






erfüllt die Anforderungen nach VdS CEA 4001








Feuerwiderstandsklasse F120

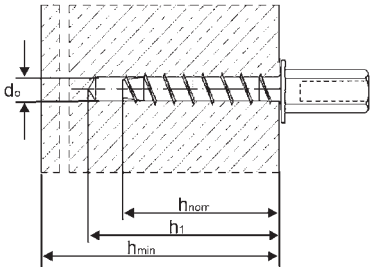
Type	Size D x L	Recess	Joint thread	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]			[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-ST	6 x 60	SW-10	M 6 * 5	5	55	45	15	0,3 2)	1,5 2)	3,8
MMS-ST	7,5 x 70	SW-10	M 8 * 14	6	55	45	25	0,5 2)	2,0 2)	3,7
MMS-ST	7,5 x 80	SW-10	M 8 * 14	6	65	55	25	2,0 7)	3,1 7)	5,3
MMS-ST	7,5 x 100	SW-10	M 8 * 14	6	65	55	45	2,0 7)	3,1 7)	5,3
MMS-ST	7,5 x 120	SW-10	M 8 * 14	6	65	55	65	2,0 7)	3,1 7)	5,3
MMS-ST	7,5 x 140	SW-10	M 8 * 14	6	65	55	85	2,0 7)	3,1 7)	5,3
MMS-ST	7,5 x 160	SW-10	M 8 * 14	6	65	55	105	2,0 7)	3,1 7)	5,3
MMS-ST	10 x 80	SW-13	M 10 * 11	8	65	55	25	0,8 2)	-	5,0
MMS-ST	10 x 100	SW-13	M 10 * 11	8	75	65	35	3,7 7)	4,9 7)	6,8
MMS-ST	10 x 120	SW-13	M 10 * 11	8	75	65	55	3,7 7)	4,9 7)	6,8

2) = according to the German DIBt-approval no. Z-21.1-1503 7) = according to ETA 05/0010

3.6 MMS-I

Type: MULTI-MONTI®-I screw-in-anchor with internal metric stud M8 or M10 respectively combined internal thread M8 / M10
Material: steel
Surface: bright zinc plated





erfüllt die Anforderungen nach VdS CEA 4001

Option 1 für gerissenen und ungerissenen Beton

Feuerwiderstandsklasse F120

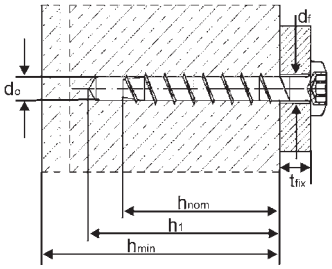
Type	Size D x L	Recess	Internal metric stud	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]			[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-I *)	7,5 x 60	SW-13	M8 / M10	6	65	55	-	2,0 7)	3,1 7)	5,3
MMS-I	7,5 x 60	SW-13	M8 * 10	6	65	55	-	2,0 7)	3,1 7)	5,3
MMS-I	10 x 85	SW-13	M10 * 12	8	75	65	-	3,7 7)	4,9 7)	6,8

7) = according to ETA 05/0010
*) = not according VDS-regulations, combined internal thread M8 * 10 / M10 * 12

3.7 MMS-P

Type: MULTI-MONTI®-P screw-in-anchor pan head
Material: steel
Surface: bright zinc plated





erfüllt die Anforderungen nach VdS CEA 4001

Option 1 für gerissenen und ungerissenen Beton

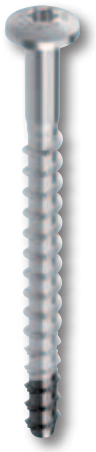
Feuerwiderstandsklasse F120

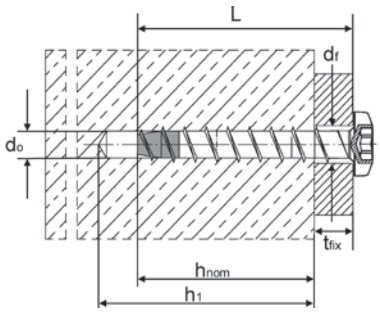
Type	Size D x L	Recess	Head diameter	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-P 1)	5 x 30*	T-20	7,9	4	35	30	1	-	-	1,9
MMS-P 1)	5 x 50*	T-20	7,9	4	40	35	15	-	-	2,6
MMS-P 1)	6 x 30*	T-30	11,6	5	35	30	1	-	-	1,9
MMS-P 1)	6 x 40*	T-30	11,6	5	40	35	5	-	-	2,4
MMS-P	6 x 50	T-30	11,6	5	55	45	5	0,3 2)	1,5 2)	3,8
MMS-P	6 x 60	T-30	11,6	5	55	45	15	0,3 2)	1,5 2)	3,8
MMS-P	6 x 80	T-30	11,6	5	55	45	35	0,3 2)	1,5 2)	3,8
MMS-P 1)	7,5 x 25*	T-40	13,6	6	30	25	1	-	-	1,2
MMS-P	7,5 x 45	T-40	13,6	6	55	45	1	0,5 2)	2,0 2)	3,7
MMS-P	7,5 x 50	T-40	13,6	6	55	45	5	0,5 2)	2,0 2)	3,7
MMS-P	7,5 x 70	T-40	13,6	6	65	55	15	2,0 7)	3,1 7)	5,3
MMS-P	10 x 70	T-40	17,0	8	75	65	5	3,7 7)	4,9 7)	6,8

1) = not part of the approvals
2) = according to the German DIBt-approval no. Z-21.1-1503
7) = according to ETA 05/0010
* = not qualified for fastenings in case of fire

3.8 MMS-P stainless steel A5

Type: MULTI-MONTI®-P screw-in-anchor pan head
Material: stainless steel A5 1.4571
other steel-sorts on request
Surface: stainless steel self-colour
function tip phosphated







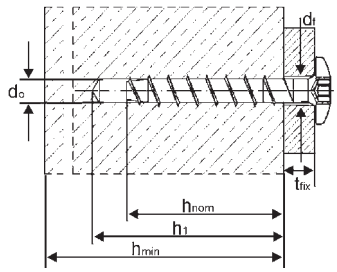
Type	Size D x L	Recess	Head diameter	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-P	7,5 x 75/10	T-30	13,6	6	75	65	10	1,8 7)	2,6 7)	5,3
MMS-P	7,5 x 85/20	T-30	13,6	6	75	65	20	1,8 7)	2,6 7)	5,3
MMS-P	7,5 x 95/30	T-30	13,6	6	75	65	30	1,8 7)	2,6 7)	5,3
MMS-P	7,5 x 115/50	T-30	13,6	6	75	65	50	1,8 7)	2,6 7)	5,3

7) = according to ETA 05/0011

3.9 MMS-MS

Type: MULTI-MONTI®-MS screw-in-anchor flange head
Material: steel
Surface: bright zinc plated







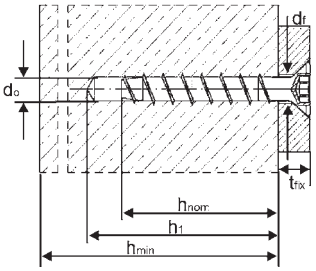
Type	Size D x L	Recess	Head diameter	Drill diameter d_0	Drill depth h_1	Em-bedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-MS	7,5 x 45	T-30	17,0	6	55	45	0	0,5 2)	2,0 2)	3,7
MMS-MS	7,5 x 50	T-30	17,0	6	55	45	5	0,5 2)	2,0 2)	3,7
MMS-MS	7,5 x 60	T-30	14,5	6	65	55	5	2,0 7)	3,1 7)	5,3

2) = according to the German DIBt-approval no. Z-21.1-1503
7) = according to ETA 05/0010

3.10 MMS-F

Type: MULTI-MONTI®-F screw-in-anchor countersunk head
Material: steel
Surface: bright zinc plated















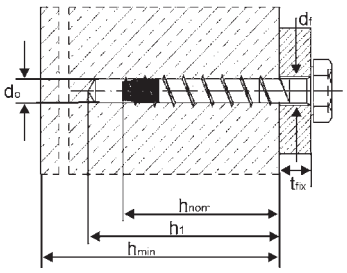
Type	Size D x L	Recess	Head diameter	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-F 1)	5 x 30*	T-25	8,7	4	35	30	1	-	-	1,9
MMS-F 1)	5 x 40*	T-25	8,7	4	40	35	5	-	-	2,6
MMS-F 1)	5 x 50*	T-25	8,7	4	40	35	15	-	-	2,6
MMS-F 1)	5 x 60*	T-25	8,7	4	40	35	25	-	-	2,6
MMS-F 1)	6 x 40*	T-30	11,0	5	35	30	10	-	-	1,9
MMS-F	6 x 50	T-30	11,0	5	55	45	5	0,3 2)	1,5 2)	3,8
MMS-F	6 x 60	T-30	11,0	5	55	45	15	0,3 2)	1,5 2)	3,8
MMS-F	6 x 80	T-30	11,0	5	55	45	35	0,3 2)	1,5 2)	3,8
MMS-F	6 x 100	T-30	11,0	5	55	45	55	0,3 2)	1,5 2)	3,8
MMS-F	6 x 120	T-30	11,0	5	55	45	75	0,3 2)	1,5 2)	3,8
MMS-F	6 x 140	T-30	11,0	5	55	45	95	0,3 2)	1,5 2)	3,8
MMS-F	7,5 x 50*	T-40	13,6	6	55	45	5	0,5 2)	2,0 2)	3,7
MMS-F	7,5 x 60	T-40	13,6	6	65	55	5	2,0 7)	3,1 7)	5,3
MMS-F	7,5 x 80	T-40	13,6	6	65	55	25	2,0 2)	3,1 7)	5,3
MMS-F	7,5 x 100	T-40	13,6	6	65	55	45	2,0 2)	3,1 7)	5,3
MMS-F	7,5 x 120	T-40	13,6	6	65	55	65	2,0 2)	3,1 7)	5,3
MMS-F	7,5 x 140	T-40	13,6	6	65	55	85	2,0 2)	3,1 7)	5,3
MMS-F	7,5 x 160	T-40	13,6	6	65	55	105	2,0 2)	3,1 7)	5,3
MMS-F	10 x 80	T-40	17,0	8	75	65	15	3,7 7)	4,9 7)	6,8

1) = not part of the approvals
2) = according to the German DIBt-approval no. Z-21.1-1503
7) = according to ETA 05/0010
* = not qualified for fastenings in case of fire

3.11 MMS-F stainless steel A5

Type: MULTI-MONTI®-F screw-in-anchor countersunk head
Material: stainless steel A5 1.4571
Surface: stainless steel self-colour
function tip phosphated





EDELSTAHL Rost frei®

erfüllt die Anforderungen nach VdS CEA 4001

Option 1 für gerissenen und ungerissenen Beton

Feuerwiderstandsklasse F120

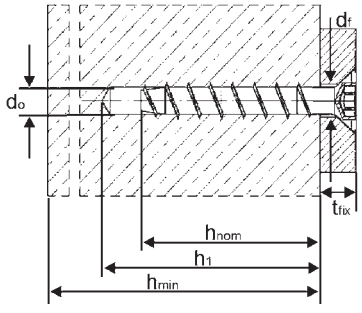
Type	Size D x L	Recess	Head diameter	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-F	7,5 x 75/10	T-30	13,6	6	75	65	10	1,8 7)	2,6 7)	5,3
MMS-F	7,5 x 85/20	T-30	13,6	6	75	65	20	1,8 7)	2,6 7)	5,3
MMS-F	7,5 x 95/30	T-30	13,6	6	75	65	30	1,8 7)	2,6 7)	5,3
MMS-F	7,5 x 115/50	T-30	13,6	6	75	65	50	1,8 7)	2,6 7)	5,3

7) = according to ETA 05/0011

3.12 MMS-KS

Type: MULTI-MONTI®-KS reduced countersunk head
Material: steel
Surface: bright zinc plated





Feuerwiderstandsklasse F120

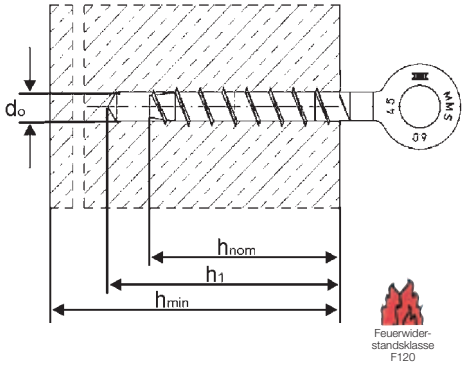
Type	Size D x L	Recess	Head diameter	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-KS 1)	5 x 40	T-20	7,8	4	40	35	5	-	-	2,6
MMS-KS 1)	5 x 50	T-20	7,8	4	40	35	15	-	-	2,6

1) = not part of the approvals

3.13 MMS-R

Type: MULTI-MONTI®-R eye-bolt-anchor
incl. installation tool
Material: steel
Surface: bright zinc plated





Type	Size D x L	Recess	Eye-diameter	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-R [1)]	6 x 40	installation tool	7	5	50	40	-	-	-	2,4

1) = not part of the approvals

3.14 MMS-TC TimberConnect

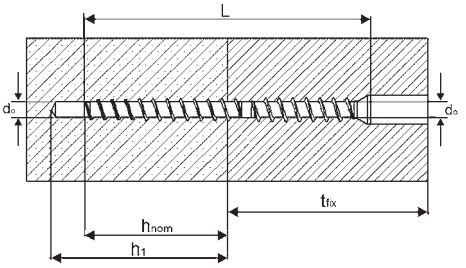
Type: MULTI-MONTI®-TimberConnect
screw-in-anchor with secondary wood thread
Material: steel
Surface: bright zinc plated

Installation tools MMS-TC

Size	MMS-TC 7,5	MMS-TC 10	MMS-TC 12
Installation tool	H 43603-T30	H 47095-T45	H 43605-T50



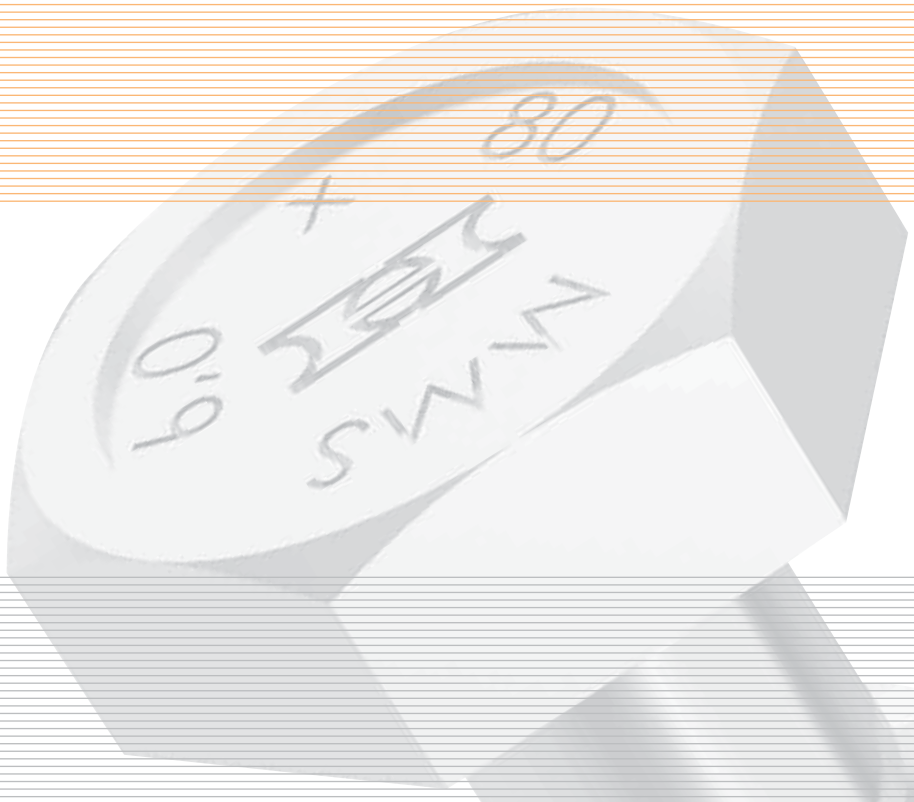






Type	Size D x L	Recess	Head diameter	Drill diameter d_0	Drill depth h_1	Embedment h_{nom}	Clamping strength t_{fix}	Adm. tension load in cracked concrete C20/25	Adm. tension load in non-cracked concrete C20/25	Rec. tension load in non-cracked concrete C20/25
	[mm] [mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]
MMS-TC	7,5 x 100	T-30	10,0	6	65	55	≥ 40	1,0 [8)]	1,0 [8)]	-
MMS-TC	10 x 130	T-45	15,5	8	75	65	≥ 60	2,1 [8)]	2,1 [8)]	-
MMS-TC	12 x 160	T-50	17,5	10	85	75	≥ 80	3,3 [8)]	3,3 [8)]	-

8) = according to the German DIBt-approval no. Z-21.1-1879 with: utility class 1; k_{mod} = 0,6; solid wood C 24



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