Hammerset anchor EA II

Proven a million times over – now with rim.

OVERVIEW

Hammerset anchor **EA II**, zinc-plated steel

Hammerset anchor **EA II A4**, stainless steel

Approved for:
- Non-cracked concrete B25 to B55 and C20/25 to C50/60
- Use as (redundant) multiple fixings of non-structural systems in cracked concrete C12/15 to C50/60

Also suitable for:
- Concrete B15
- Natural stone with dense structure

For fixing of:
- Pipelines
- Ventilation pipes
- Sprinkler systems
- Gratings
- Cable trays
- Suspended ceilings

European Technical Approval- Option 7 for non-cracked concrete

For multiple fixings of non-structural applications in cracked concrete

Fire resistance classification R 120 Anchor types see test report

FM APPROVED from M10

M8 - M12

DESCRIPTION

- Hammerset anchor with internal thread for pre-positioned installation.
- When driving in the expansion cone with the impact setting tool EAW H Plus, the anchor sleeve is spread and thus expanded against the drill hole wall.
- Design EA II made from stainless steel A4 for outdoor applications and in wet rooms.

Advantages/benefits

- Maximum load-bearing capacity: the EA II uses the maximum load-bearing capacity of the (non-cracked) concrete. The EA II thus has the maximum possible safety reserves.
- Suitable for all screws or threaded bolts with metric thread.
- Low setting depth reduces drilling time and facilitates cost-effective mounting.
- Surface-flush anchor permits multiple releasing and fixing of the fixture.
- So far common test loadings are no longer necessary.
- Machine setting tool EA II S-SDS for time-saving serial installation.

EA II - ADVANTAGES AT A GLANCE

Simple setting check: When the hammerset tool EAW H Plus is used for mounting, the EA II is spread apart and the rim is automatically given an easily visible embossing.

The **internal thread** facilitates the use of threaded rods or screws with metric thread.

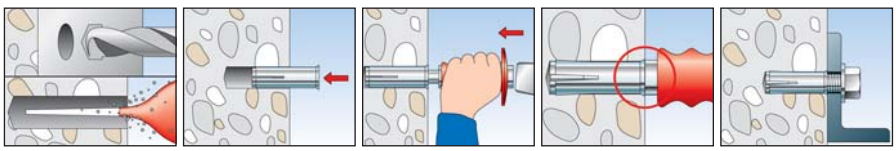
The **unit of anchor sleeves and inner spread cone** results in maximum load-bearing capacities in non-cracked concrete. The anchor sleeve is forged, making it particularly resistant.

The **moulded rim** prevents the anchor slipping down if the drillhole has been drilled too deeply and ensures that the fixation point looks better.

INSTALLATION

Type of installation

- Pre-positioned installation



Installation tips

- When selecting the screw, the minimum and maximum screw-in depth needs to be observed.
- For the fixation of core drilling machines and diamond saws, use the special EA II M 12 D (see page 152) with stronger anchor sleeve or the special fixing device FDBB (see page 168).
- The EA II M 10 x 30 for M 10 thread diameter and reduced drill depth (e.g. because of probable reinforcement hits)
- Type EA II M 8 x 40 with bigger anchorage depth, espacially for (single) fixings for them a well-priced M8 thread diameter is sufficient, but a bigger load bearing capacity is needed.

FIXING PRINCIPLES
In detail: The general principles for installation, the correct drilling procedure and much more on page 26.

STANDARDS
You will find everything that has standards on page 34 under the keywird approvals.

REDUNDANT
More information about redundant systems see „Approval specifications for fixings" page 35.

Hammerset anchor EA II

TECHNICAL DATA

Hammerset anchor **EA II**, zinc-plated steel. **Not suitable for core drilling machines and diamond saws.**

Hammerset anchor **EA II A4**, stainless steel. **Not suitable for core drilling machines and diamond saws.**

Type	Art.-No.	ID	approval	drill	min. drill hole depth	effect. anchoring depth	anchor length	thread	min. bolt penetration	max. bolt penetration	Qty. per box
			■ ETA	d_0	h_1	h_{ef}	l	M	$l_{s,min}$	$l_{s,max}$	
				[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	pcs.
EA II M 6	**48264**	3	■	8	32	30	30	M 6	8	12	100
EA II M 8	**48284**	1	■	10	33	30	30	M 8	10	13	100
EA II M 8 x 40	**48323**	7	■	10	43	40	40	M 8	10	13	50
EA II M 10 x 30	**48332**	9	■	12	33	30	30	M 10	12	12	50
EA II M 10	**48339**	8	■	12	43	40	40	M 10	12	16	50
EA II M 12	**48406**	7	■	15	54	50	50	M 12	14	22	25
EA II M 16	**48408**	1	■	20	70	65	65	M 16	18	28	20
EA II M 20	**48409**	8	■	24	85	80	80	M 20	23	34	10
EA II M 6 A4	**48410**	4	■	8	32	30	30	M 6	8	12	100
EA II M 8 A4	**48411**	1	■	10	33	30	30	M 8	10	13	100
EA II M 8 x 40 A4	**48412**	8	■	10	43	40	40	M 8	10	13	50
EA II M 10 A4	**48414**	2	■	12	43	40	40	M 10	12	16	50
EA II M 12 A4	**48415**	9	■	15	54	50	50	M 12	14	22	25
EA II M 16 A4	**48416**	6	■	20	70	65	65	M 16	18	28	20
EA II M 20 A4	**48417**	3	■	24	85	80	80	M 20	23	34	10
EA II M 6 A4 (1.4571)	**45711**	5	■	8	32	30	30	M 6	8	12	100
EA II M 8 A4 (1.4571)	**45712**	2	■	10	33	30	30	M 8	10	13	100
EA II M10 A4 (1.4571)	**45713**	9	■	12	43	40	40	M 10	12	16	50

Hammerset anchor **EA II M12 D**, zinc-plated steel, **Suitable for core drilling machines and diamond saws.**

Type	Art.-No.	ID	drill	min. drill hole depth	effect. anchoring depth	anchor length	thread	min. bolt penetration	max. bolt penetration	Qty. per box
			d_0	h_1	h_{ef}	l	M	$l_{s,min}$	$l_{s,max}$	
			[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	pcs.
EA II M 12 D	**48407**	4	16	54	50	50	M 12	12	22	25

Machine setting tool **EA II S-SDS**

Type		Art.-No.	ID	clamping system of hammer drill	fits	Qty. per box
						pcs.
EA II S-SDS 6	1)	**48065**	6	SDS plus	EA II M6*, EA M 6 N	1
EA II S-SDS 8	1)	**48066**	3	SDS plus	EA II M 8*, EA M 8 N	1
EA II S-SDS 8 x 40	1)	**48067**	0	SDS plus	EA II M 8 x 40*	1
EA II S-SDS 10 x 30	1)	**48068**	7	SDS plus	EA II M 10 x 30	1
EA II S-SDS 10	1)	**48070**	0	SDS plus	EA II M 10*, EA M 10 N	1
EA II S-SDS 12	1)	**48071**	7	SDS plus	EA II M 12 D*, EA II M 12, EA M 12 N	1
EA II S-SDS-m 16	1)	**48072**	4	SDS max	EA II M 16*, EA M 16 N	1
EA II S-SDS-m 20	1)	**48073**	1	SDS max	EA II M 20*, EA M 20 N	1

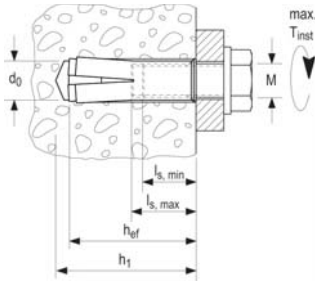
1) without embossing tool

* zinc-plated and stainless steel

Setting tool **EAW H Plus** with hand impact protection for your safety and embossing tool.

Type	Art.-No.	ID	fits	Qty. per box
				pcs.
EAW H 6 Plus	**44630**	0	EA II M6*, EA M 6 N	1
EAW H 8 Plus	**44631**	7	EA II M 8*, EA M 8 N	1
EAW H 8 x 40 Plus	**44632**	4	EA II M 8 x 40*	1
EAW H 10 Plus	**44633**	1	EA II M 10*, EA M 10 N	1
EAW H 10 x 30 Plus	**48487**	6	EA II M 10 x 30	1
EAW H 12 Plus	**44634**	8	EA II M 12*, EA II M 12 D, EA M 12 N	1
EAW H 16 Plus	**44635**	5	EA II M 16*, EA M 16 N	1
EAW H 20 Plus	**44636**	2	EA II M 20*, EA M 20 N	1

* zinc-plated and stainless steel



FIRE PREVENTION
Red hot: You will find fire prevention information on page 31.

DYNAMICS
Big efffect: Pages 33 are full of useful information.

CORROSION
Rust prevention tips: Everything you need to know about corrosion and how to prevent it is on page 32.

LOADS

Mean ultimate loads, design resistant and recommended loads for single anchors of fischer Hammerset anchor EA II with large spacing and edge distance

Anchor type			EA II M6[2]					EA II M8[2]					EA II M8 x 40					EA II M10 x 30[4]					EA II M10				
			gvz				A4	gvz				A4	gvz				A4	gvz				A4	gvz				A4
Quality of the used screw			4,6	5,6	5,8	8,8	A4-70	4.6	5.6	5.8	8.8	A4-70	4.6	5.6	5.8	8.8	A4-70	4,6	5,6	5,8	8,8	A4-70	4,6	5,6	5,8	8,8	A4-70
Effective embedment depth	h_{ef}	[mm]	30					30					40					30					40				
Drill hole depth	$h_1 \geq$	[mm]	32					33					43					33					43				
Nominal drill hole diameter	d_0	[mm]	8					10					10					12					12				
Mean ultimate loads N_u and V_u [kN]																											
Tensile	0°	N_u [kN]	8.0*	10.1*		11.1	11.1	11.1				11.1	14.6*	17.1			17.1	11.1				11.1	17.1				17.1
Shear	90°	V_u [kN]	4.0*	5.0*		6.8*	7.7*	7.3*	8.6*			9.8*	7.3*	8.6*			9.8*	10.9*				12.4*	10.9*				12.4*
Design resistant loads N_{Rd} and V_{Rd} [kN]																											
Tensile	0°	N_{Rd} [kN]	4.0	5.1	5.5		5.5	5.5				5.5	7.3	8.5			8.5	5.5				5.5	8.5				8.5
Shear	90°	V_{Rd} [kN]	2.0	3.0	4.0	5.4	4.5	4,4	5,5			5.5	4.4	5.5	6.9		7.8	5.5				5.5	6.9	8.5			8.5
Recommended loads N_{rec} and V_{rec} [kN]																											
Tensile	0°	N_{rec} [kN]	2.9	3.6	3.9		3.9	3.9				3.9	5.2	6.1			6.1	3.9				3.9	6.1				6.1
Shear	90°	V_{rec} [kN]	1.7	2.1	2.9	3.9	3.2	3.1	3.9			3.9	3.1	3.9	4.9		5.6	3.9				3.9	5.0	6.1			6.1
Recommended bending moment M_{rec} [Nm]																											
		M_{rec} [Nm]	2.6	3.3	4.3	6.9	5.0	6.4	8.1	10.9	17.1	11.9	6.4	8.1	10.9	17.1	11.9	12.8	15.8	21.1	34.3	23.8	12.8	15.8	21.1	34.3	23.8
Anchor characteristics																											
Characteristic spacing	$s_{cr,N}$	[mm]	= 3 x h_{ef}																								
Characteristic edge distance	$c_{cr,N}$	[mm]	= 1,5 x h_{ef}																								
Minimum spacing[1]	s_{min}	[mm]	65					95					95					85					95				
Minimum edge distance[1]	c_{min}	[mm]	115					140					140					140					160				
Minimum structural component thickness	h_{min}	[mm]	100					100					100					120					120				
Minimum screw penetration depth	min l_s	[mm]	6					8					8					10					10				
Maximum screw penetration depth	max l_s	[mm]	13					13					13					13					17				
Clearance-hole in fixture to be attached	$d_f \leq$	[mm]	7					9					9					12					12				
Maximum torque	max T_{inst}	[Nm]	4					8					8					15					15				

Anchor type			EA II M12					EA II M12 D					EA II M16					EA II M20				
			gvz				A4	gvz				A4	gvz				A4	gvz				A4
Quality of the used screw			4.6	5.6	5.8	8.8	A4-70	4.6	5.6	5.8	8.8	A4-70	4,6	5,6	5,8	8,8	A4-70	4.6	5.6	5.8	8.8	A4-70
Effective embedment depth	h_{ef}	[mm]	50					50					65					80				
Drill hole depth	$h_1 \geq$	[mm]	54					54					70					85				
Nominal drill hole diameter	d_0	[mm]	15					16					20					25				
Mean ultimate loads N_u and V_u [kN]																						
Tensile	0°	N_u [kN]	23.9				23.9	23.9				23.9	35.4				35.4	48.3				48.3
Shear	90°	V_u [kN]	16.9*	19.8*			22.6*	16.9*	21.1*			30.4*	31.3	32.4*			36.9*	49.0*	51.4*			58.6*
Design resistant loads N_{Rd} and V_{Rd} [kN]																						
Tensile	0°	N_{Rd} [kN]	11.9				11.9	11.9				11.9	17.6				17.6	24.0				24.0
Shear	90°	V_{Rd} [kN]	10.1	11.9			11.9	10.1	11.9			11.9	18.6	23.4	52.6		29.6	29.3	36.5	40.8		47.2
Recommended loads N_{rec} and V_{rec} [kN]																						
Tensile	0°	N_{rec} [kN]	8.5				8.5	8.5				8.5	12.6				12.6	17.2				17.2
Shear	90°	V_{rec} [kN]	7.2	8.5			8.5	7.2	8.5			8.5	13.3	16.7	18.3		21.1	21.0	26.1	29.1		33.7
Recommended bending moment M_{rec} [Nm]																						
		M_{rec} [Nm]	22.2	28.2	37.7	60.0	42.1	22.2	28.2	37.7	60.0	42.1	56.9	71.0	94.9	152.0	106.2	110.8	138.6	185.1	295.4	207.9
Anchor characteristics																						
Characteristic spacing	$s_{cr,N}$	[mm]	= 3 x h_{ef}																			
Characteristic edge distance	$c_{cr,N}$	[mm]	= 1,5 x h_{ef}																			
Minimum spacing[1]	s_{min}	[mm]	145					142					180					190				
Minimum edge distance[1]	c_{min}	[mm]	200					200					240					280				
Minimum structural component thickness	h_{min}	[mm]	120					120					160					200				
Minimum screw penetration depth	min l_s	[mm]	12					12					16					20				
Maximum screw penetration depth	max l_s	[mm]	22					22					28					34				
Clearance-hole in fixture to be attached	$d_f \leq$	[mm]	14					14					18					22				
Maximum torque	max T_{inst}	[Nm]	35					35					60					120				

All values apply for concrete C20/25 without edge or spacing influences.
Design resistant loads: material safety factor γ_M is included. Material safety factor γ_M depends on the type of anchor.
Recommended loads: material safety factor γ_M and safety factor for load γ_L = 1.4 are included.
* Steel failure decisive.
[1] For minimum spacing and minimum edge distance the above described loads have to be reduced (See "fischer Technical Handbook" or design software "CC-COMPUFIX")!
[2] Use restricted to anchoring of structural components which are statically indeterminate.

Hammerset anchor EA II

LOADS

Mean ultimate loads, design resistant and recommended loads for single anchors of fischer Hammerset anchor EA II for a multiple fixing with large spacing and edge distance

Anchor type			EA II M6					EA II M8					EA II M8 x 40				
			gvz				A4	gvz				A4	gvz				A4
Quality of the used screw			4,6	5,6	5,8	8,8	A4-70	4.6	5.6	5.8	8.8	A4-70	4.6	5.6	5.8	8.8	A4-70
Effective embedment depth	h_{ef}	[mm]	30					30					40				
Drill hole depth	$h_1 \geqq$	[mm]	32					33					43				
Nominal drill hole diameter	d_0	[mm]	8					10					10				
Mean ultimate load F_u [1] of a single anchor of a multiple fixing without edge influence																	
Tension, shear or combined tension and shear	F_u	[kN]	7.6				7.6	7.6				7.6	11.6				11.6
Design resistant load F_{Rd} of a single anchor of a multiple fixing without edge influence																	
Tension, shear or combined tension and shear	F_{Rd}	[kN]	1.4				1.4	2.3				2.3	2.3				2.3
Recommended load F_{rec} [1] of a single anchor of a multiple fixing without edge influence																	
Tension, shear or combined tension and shear	F_{rec}	[kN]	1.0				1.0	1.7				1.7	1.7				1.7
Recommended bending moment M_{rec} [Nm]																	
	M_{rec}	[Nm]	2,6	3,3	4,3	6,9	5,0	6,4	8,1	10,9	17,1	11,9	6.4	8.1	10.9	17.1	11.9
Anchor characteristics																	
Characteristic spacing	s_{cr}	[mm]	90					90					120				
Characteristic edge distance	c_{cr}	[mm]	45					45					60				
Minimum structural component thickness	h_{min1}	[mm]	100[2]					100[2]					100[2]				
Minimum spacing[1]	s_{min1}	[mm]	65[2]					95[2]					95[2]				
Minimum edge distance[1]	c_{min1}	[mm]	115[2]					140[2]					140[2]				
Minimum structural component thickness	h_{min2}	[mm]	80[2]					80[2]					80[2]				
Minimum spacing[1]	s_{min2}	[mm]	200[2]					200[2]					200[2]				
Minimum edge distance[1]	c_{min2}	[mm]	150[2]					150[2]					150[2]				
Minimum screw penetration depth	min l_s	[mm]	6					8					8				
Maximum screw penetration depth	max l_s	[mm]	13					13					13				
Clearance-hole in fixture to be attached	$d_f \leqq$	[mm]	7					9					9				
Maximum torque	max T_{inst}	[Nm]	4					8					8				

Anchor type			EA II M10 x 30					EA II M10					EA II M12				
			gvz				A4	gvz				A4	gvz				A4
Quality of the used screw			4,6	5,6	5,8	8,8	A4-70	4,6	5,6	5,8	8,8	A4-70	4,6	5,6	5,8	8,8	A4-70
Effective embedment depth	h_{ef}	[mm]	30					40					50				
Drill hole depth	$h_1 \geqq$	[mm]	33					43					54				
Nominal drill hole diameter	d_0	[mm]	12					12					15				
Mean ultimate load F_u [1] of a single anchor of a multiple fixing without edge influence																	
Tension, shear or combined tension and shear	F_u	[kN]	7.6				7.6	11.6				11.6	16.3				16.3
Design resistant load F_{Rd} of a single anchor of a multiple fixing without edge influence																	
Tension, shear or combined tension and shear	F_{Rd}	[kN]	2.3				2.3	3.5				3.5	5.0				5.0
Recommended load F_{rec} [1] of a single anchor of a multiple fixing without edge influence																	
Tension, shear or combined tension and shear	F_{rec}	[kN]	1.7				1.7	2.5				2.5	3.6				3.6
Recommended bending moment M_{rec} [Nm]																	
	M_{rec}	[Nm]	12.8	15.8	21.1	34.3	23.8	12.8	15.8	21.1	34.3	23.8	22.2	28.2	37.7	60.0	42.1
Anchor characteristics																	
Characteristic spacing	s_{cr}	[mm]	90					200					300				
Characteristic edge distance	c_{cr}	[mm]	45					100					150				
Minimum structural component thickness	h_{min1}	[mm]	120[2]					120[2]					120[2]				
Minimum spacing[1]	s_{min1}	[mm]	85[2]					95[2]					145[2]				
Minimum edge distance[1]	c_{min1}	[mm]	140[2]					160[2]					200[2]				
Minimum structural component thickness	h_{min2}	[mm]	80[2]					80[2]					100[2]				
Minimum spacing[1]	s_{min2}	[mm]	200[2]					250[2]					300[2]				
Minimum edge distance[1]	c_{min2}	[mm]	150[2]					200[2]					300[2]				
Minimum screw penetration depth	min l_s	[mm]	10					10					12				
Maximum screw penetration depth	max l_s	[mm]	13					17					22				
Clearance-hole in fixture to be attached	$d_f \leqq$	[mm]	12					12					14				
Maximum torque	max T_{inst}	[Nm]	15					15					35				

All values apply for single anchors of a multiple fixing of a non-strucural component in cracked and non-cracked concrete C20/25 to C50/60 without edge or spacing influences.
Design resistant loads: material safety factor γ_M is included. Material safety factor γ_M depends on the type of anchor.
Recommended loads: material safety factor γ_M and safety factor for load γ_L = 1.4 are included.

[1] For minimum spacing and minimum edge distance the above described loads have to be reduced (See European technical approval ETA-07/0142)!

[2] The minimum structural component thickness h_{min1} are valid along with the minimum spacing and edge distance s_{min1} bzw. c_{min1}; the minimum structural component thickness h_{min2} are valid along with the minimum spacing and edge distance s_{min2} bzw. c_{min2}.