

Drop-in Anchor E A4 / E HCR

Stainless steel A4/316 / High corrosion resistant steel 1.4529 (HCR)



Drop-in Anchor E A4 / E HCR



Description

European approved Drop-in Anchor E A4 and E HCR (ETA, Option 7): Deformable expansion cone adjusts to strength of concrete as well as to size of hole within the variation range of a drill bit from new to worn. The anchor assures easy and safe fastening. The shoulder of the setting tool contacts the anchor in any case. The marking setting tool leaves four significant marks on each anchor as proof of correct expansion.

Applications

Attaching suspended ceilings, ventilation and sprinkler systems, structural steel, brackets, threaded rods.



Drop-in Anchor E A4 / E HCR

Hole drilled with a new drill bit in concrete C20/25:

→ Cone is not deformed during installation



Drop-in Anchor E A4 / HCR

- small drill hole
- concrete C50/60

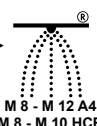
→ Cone is deformed during installation



The setting tool E-MSW and E-MSH leaves four significant marks on each anchor as proof of correct expansion.

Range of loading: 1,2 kN - 30,7 kN

Range of concrete quality: C20/25 - C50/60



Drop-in Anchor E A4



→ Stainless steel A4/316

→ Approved for concrete

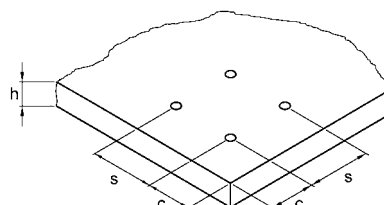
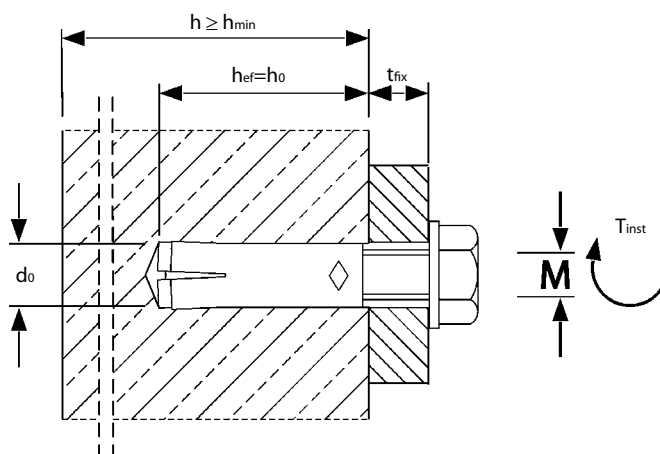
Description	Ref. No.	Drill hole Ø x depth mm	Thread Ø x length mm	Package content pcs.	Weight per package kg
E M 5 A4 ¹⁾	05000501	8 x 25	M5 x 10	100	0,82
E M 6 A4	05005501	8 x 30	M6 x 13	100	0,79
E M 8 A4	05100501	10 x 30	M8 x 13	100	1,24
E M 8 x 40 A4	05105501	10 x 40	M8 x 20	100	1,55
E M 10 A4	05200501	12 x 40	M10 x 15	50	1,17
E M 12 A4	05300501	15 x 50	M12 x 18	50	2,35
E M 16 A4	05500501	20 x 65	M16 x 23	25	2,80
E M 20 A4	05600501	25 x 80	M20 x 34	25	5,12

¹⁾ Not part of approval.

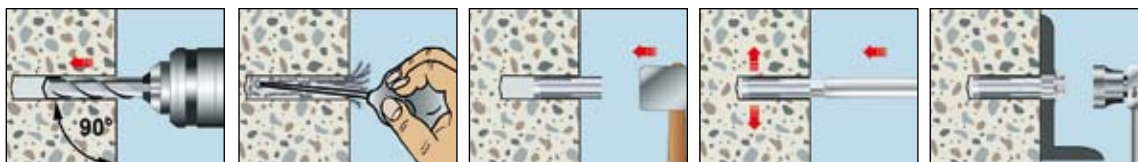
High corrosion resistant steel 1.4529 (HCR) on demand.

Setting tool E-MSW, E-MSH and E-SW see page 28.

Coated screws see page 16.



Installation



**Extract from Permissible Service Conditions of ETA-03/0031**

Approved loads for single anchor without influence of spacing and edge distance.
Total safety factor as per ETAG 001 included (γ_M and γ_P).

Loads and performance data	Drop-in Anchor E A4 / E HCR		M 5 ¹⁾	M 6 ¹⁾	M 8 ¹⁾	M 8x40	M 10	M 12 ²⁾	M 16 ²⁾	M 20 ²⁾
			non-cracked concrete							
Mean ultimate loads, tension	C25/30	N _{um} [kN]	8,0	12,2	14,2	16,1	19,8	27,7	41,0	62,7
Mean ultimate loads, shear	C25/30	V _{um} [kN]	5,7	8,5	14,1	14,8	20,3	37,3	64,9	94,6
Approved loads, tension	C20/25	appr. N [kN]	1,6	3,9	3,9	4,3	6,1	8,5	12,6	17,2
		appr. N [kN]	1,7	4,3	4,3	4,7	6,7	9,3	13,8	18,9
		appr. N [kN]	1,9	4,8	4,8	5,2	7,4	10,4	15,3	21,0
		appr. N [kN]	2,2	5,3	5,6	6,0	8,6	12,0	17,7	24,2
Approved loads, shear	≥ C20/25	appr. V [kN]	2,5	5,3	6,1	6,6	9,4	13,2	19,5	26,6
		appr. V [kN]	2,3	3,2	4,6	4,6	6,0	11,9	19,2	30,7
Approved bending moments (Screw A4-70)		appr. M [Nm]	-	5,0	11,9	11,9	23,8	42,1	106,7	207,9
Spacing and edge distance										
Effective anchorage depth		h _{ef} [mm]	25	30	30	40	40	50	65	80
Characteristic spacing		s _{cr,N} [mm]	75	90	90	120	120	150	195	240
Characteristic edge distance		c _{cr,N} [mm]	37,5	45	45	60	60	75	97,5	120
Minimum spacing		s _{min} [mm]	60	50	60	80	100	120	150	160
Minimum edge distance		c _{min} [mm]	95	80	95	95	135	165	200	260
Minimum thickness of concrete slab		h _{min} [mm]	100	100	100	100	130	140	160	250
Installation parameters										
Drill hole diameter		d _o [mm]	8	8	10	10	12	15	20	25
Diameter of clearance hole in the fixture		d _f [mm]	6	7	9	9	12	14	18	22
Depth of drill hole		h _o [mm]	25	30	30	40	40	50	65	80
Installation torque		T _{inst} [Nm]	3	4	8	8	15	35	60	120
Minimum screwing depth		L _{sd} [mm]	6	7	9	9	11	13	18	22
Maximum screwing depth		L _{th} [mm]	10	13	13	20	15	18	23	34

¹⁾ Valid only for statically indeterminate systems. Size M 5 not part of approval.

²⁾ The approval of sizes M12, M16 and M20 is valid for stainless steel A4.

For anchor designing, an easy to operate CD-ROM is available on request or can be downloaded at www.mkt-duebel.de.

**Extract from Permissible Service Conditions of ETA-05/0117**

Multiple use for non-structural applications.
Total safety factor as per ETAG 001 included (γ_M and γ_P).

Loads and performance data	Drop-in Anchor E A4 / E HCR		M 6	M 8	M 8x40	M 10	M 12 ¹⁾
			cracked and non-cracked concrete				
Approved loads (C20/25 to C50/60)		appr. F [kN]	1,2	1,7	2,0	2,0	2,4
Approved bending moments (A4-70)		appr. M [Nm]	5,0	11,9	11,9	23,8	42,1
Spacing and edge distance							
Effective anchorage depth		h _{ef} [mm]	30	30	40	40	50
Characteristic spacing		s _{cr} [mm]	130	180	210	170	170
Characteristic edge distance		c _{cr} [mm]	65	90	105	85	85
Minimum spacing		s _{min} [mm]	50	60	80	100	120
Minimum edge distance		c _{min} [mm]	80	95	95	135	165
Minimum thickness of concrete slab		h _{min} [mm]	100	100	100	130	140
Installation parameters							
Drill hole diameter		d _o [mm]	8	10	10	12	15
Diameter of clearance hole in the fixture		d _f [mm]	7	9	9	12	14
Depth of drill hole		h _o [mm]	30	30	40	40	50
Installation torque		T _{inst} [Nm]	4	8	8	15	35
Minimum screwing depth		L _{sd} [mm]	7	9	9	11	13
Maximum screwing depth		L _{th} [mm]	13	13	20	15	18
Loads under fire exposure							
Approved loads R30		appr. F [kN]	0,8	0,9	0,9	1,5	1,5
Approved loads R60		appr. F [kN]	0,8	0,9	0,9	1,5	1,5
Approved loads R90		appr. F [kN]	0,4	0,9	0,9	1,5	1,5
Approved loads R120		appr. F [kN]	0,2	0,4	0,4	1,0	1,2
Characteristic spacing		s _{cr,fi} [mm]	130	180	210	170	200
Characteristic edge distance		c _{cr,fi} [mm]	65	90	105	85	100
Minimum spacing		s _{min} [mm]	50	60	80	100	120
Minimum edge distance		c _{min} [mm]	80	95	95	135	165

¹⁾ The approval of size M12 is valid for stainless steel A4.

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